

APPENDIX A

PRIOR FIELD INVESTIGATION DATA

Appendix A

Contents

- A.1 NUS 1985 and EBASCO 1988 Aberjona Auto Parts
Soil and Groundwater Data Summary Tables***
- A.2 Data Summary Tables and Figure Excerpts –
RETEC 1994 Draft Remedial Investigation –
Southwest Properties***
- A.3 GHR 1988 Whitney Barrel Soil and Groundwater
Data Summary Table Excerpts***
- A.4 Clean Harbors Table and Figure Excerpts for the
Murphy Property and Short Term Measure Soil
Characterization Data***

Appendix A.1

NUS 1985 and EBASCO 1988 Aberjona Auto Parts Soil and Groundwater Data Summary Tables

Table 2-8
Aberjona Auto Parts Soil Analytical Results

Compound	AB-1-01 0'-2'	AB-1-02 2'-4'	AB-1-03 4'-6'	AB-1-04 9'-11'
Volatile Organic Compounds (mg/kg)				
1,1,1-Trichloroethane	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA	NA
2-Butanone	--	--	0.011 J	--
4-Methyl-2-Pentanone	NA	NA	NA	NA
Acetone	0.006 J	0.006	.13 J	--
Benzene	NA	NA	NA	NA
Carbon Disulfide	NA	NA	NA	NA
Chlorobenzene	NA	NA	NA	NA
Chloroethane	NA	NA	NA	NA
Chloroform	--	--	--	4
Ethylbenzene	NA	NA	NA	NA
Methylene Chloride	--	--	--	3
Tetrachloroethane	NA	NA	NA	NA
Tetrachloroethene	NA	NA	NA	NA
Toluene	0.009	--	0.023	--
Total Xylenes	--	--	--	--
Trichloroethene	NA	NA	NA	NA
Vinyl Chloride	NA	NA	NA	NA
Base Neutral Compounds (mg/kg)				
1,2,4-Trichlorobenzene	NA	NA	NA	NA
1,2-Dichlorobenzene	NA	NA	NA	--
1,3-Dichlorobenzene	NA	NA	NA	NA
1,4-Dichlorobenzene	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	--
Acenaphthene	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA
Benzo(A)Anthracene	NA	NA	NA	NA
Benzo(A)Pyrene	NA	NA	NA	NA
Benzo(B)Fluoranthene	NA	NA	NA	NA
Benzo(GHI)Perylene	NA	NA	NA	NA
Benzo(K)Fluoranthene	NA	NA	NA	NA
Benzyl Alcohol	NA	NA	NA	NA
Benzyl Butyl Phthalate	NA	NA	NA	NA
Bis-(2-Ethylhexyl) Phthalate	NA	NA	NA	--
Butylbenzylphthalate	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA
Dibenzo(AH)Anthracene	NA	NA	NA	NA
Diethyl Phthalate	NA	NA	NA	NA
Di-N-Butyl Phthalate	NA	NA	NA	NA
Di-N-Octyl Phthalate	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA
Indeno(1,2,3-CD)Pyrene	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA
Pyrene	NA	NA	NA	--
Acid Compounds (mg/kg)				
2,4,5-Trichlorophenol (2)	NA	NA	NA	NA
2,4-Dinitrophenol	NA	NA	NA	NA
2-Methylphenol	NA	NA	NA	NA
4-Methylphenol	NA	NA	NA	NA
Phenol	NA	NA	NA	NA
Pesticides/PCBs (mg/kg)				
Chlordane	NA	NA	NA	--
PCB-1242	NA	NA	NA	NA
PCB-1254	NA	NA	NA	NA
PCB-1248	NA	NA	NA	NA
PCB-1260	NA	NA	NA	NA
Inorganic Compounds (mg/kg)				
Aluminum	NA	NA	NA	6.46
Antimony	NA	NA	NA	--
Arsenic	NA	NA	NA	7.7
Barium	NA	NA	NA	25
Cadmium	NA	NA	NA	--
Calcium	NA	NA	NA	2.57
Chromium	NA	NA	NA	16
Cobalt	NA	NA	NA	4.3
Copper	NA	NA	NA	9.2
Iron	NA	NA	NA	19.1
Lead	NA	NA	NA	2.9
Magnesium	NA	NA	NA	3.09
Manganese	NA	NA	NA	138
Mercury	NA	NA	NA	--
Nickel	NA	NA	NA	11
Potassium	NA	NA	NA	1.57
Sodium	NA	NA	NA	223
Zinc	NA	NA	NA	22

NA =

Not Analyzed For

= Estimated Quantity

-- = Below Detectable Limit

R = Value Was Reported

C = The result has been corrected for the presence of the analyte in the blank

All compounds listed were detected at one time during analysis of sediment, soil or water

Source: Supplemental Remedial Investigation for Freshwater South of Wells G & H Site, Woburn, MA; Electro Services, Inc. 1986

Table 2-9
Aberjona Auto Parts
Summary of Analytical Results of Ground Water Samples

Compound	AB1-01 Ebasco 12-17-87	AB1-02 Ebasco 12-17-87	S83 NUS/FIT April 1985	S83 NUS/FIT April 1985	S83 NUS/FIT May 1985	S83 NUS/FIT June 1985	S83 NUS/FIT June 1985	S83 Ebasco 11-5-87
Volatile Organic Compounds (ug/L)								
Acetone	12 B	110 B	--	--	R	R	R	--
1,1-Dichloroethane	--	--	--	--	--	--	--	--
Toluene	--	8 J	--	--	--	--	--	--
1,1,1-Trichloroethane	--	--	--	--	--	--	--	--
Tetrachloroethane	--	--	--	--	15	12	14	--
Trichloroethene	--	--	--	1,400 J	470	440	470	69
1,2-Dichloroethane	--	--	NA	NA	NA	NA	NA	7
1,1-Dichloroethene	--	--	--	--	--	--	--	--
Chloroform	--	6 J	R	R	--	--	--	--
Methylene Chloride	--	--	R	R	R	R	R	--
2-Butanone	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethane	NA	NA	--	--	110	93	100	NA
1,1,2,2-Tetrachloroethane	NA	NA	--	--	--	--	--	NA
Benzene	NA	NA	--	--	--	--	--	--
Ethylbenzene	NA	NA	--	--	--	--	--	--
Vinyl Chloride	NA	NA	--	--	--	--	--	NA
Styrene	NA	NA	--	--	--	--	--	NA
Total Xylenes	--	6 J	--	--	--	--	--	--
Semi-Volatile Organic Compounds (ug/L)								
N-Nitrosodiphenylamine	28 B	26 B	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) Phthalate	10 B	--	19	--	NA	NA	NA	NA
Di-n-Butyl Phthalate	--	--	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate	--	--	NA	NA	NA	NA	NA	NA
Di-n-Octyl Phthalate	--	--	--	--	NA	NA	NA	NA
Pesticides/PCBs (ug/L)								
Chlorodane	--	--	--	--	NA	NA	NA	NA
Inorganic Compounds (ug/L)								
Aluminum	10,400	11,600	710	740	NA	NA	NA	NA
Antimony	--	--	--	--	NA	NA	NA	NA
Arsenic	8.3 B	12.1	--	--	NA	NA	NA	NA
Barium	115 B	121 B	30	23	NA	NA	NA	NA
Beryllium	--	--	--	--	NA	NA	NA	NA
Cadmium	--	--	8	--	NA	NA	NA	NA
Calcium	50,600	45,600	62,000	62,000	NA	NA	NA	NA
Chromium	25	23	--	--	NA	NA	NA	NA
Cobalt	--	--	7.4	7.9	NA	NA	NA	NA
Copper	--	22 B	R	R	NA	NA	NA	NA
Iron	14,000	26,600	2,000	2,000	NA	NA	NA	NA
Lead	--	--	--	--	NA	NA	NA	NA
Magnesium	13,700	12,200	12,000	12,000	NA	NA	NA	NA
Manganese	781	1,020	740	740	NA	NA	NA	NA
Mercury	--	--	--	--	NA	NA	NA	NA
Nickel	--	--	R	--	NA	NA	NA	NA
Potassium	9,990	7,570	4,900	5,100	NA	NA	NA	NA
Selenium	--	--	R	--	NA	NA	NA	NA
Silver	--	--	--	--	NA	NA	NA	NA
Sodium	74,500	65,100	85,000	83,000	NA	NA	NA	NA
Thallium	--	--	--	--	NA	NA	NA	NA
Vanadium	17 B	28	--	--	NA	NA	NA	NA
Zinc	45	51	35	35	NA	NA	NA	NA
Cyanide	--	--	NA	NA	NA	NA	NA	NA

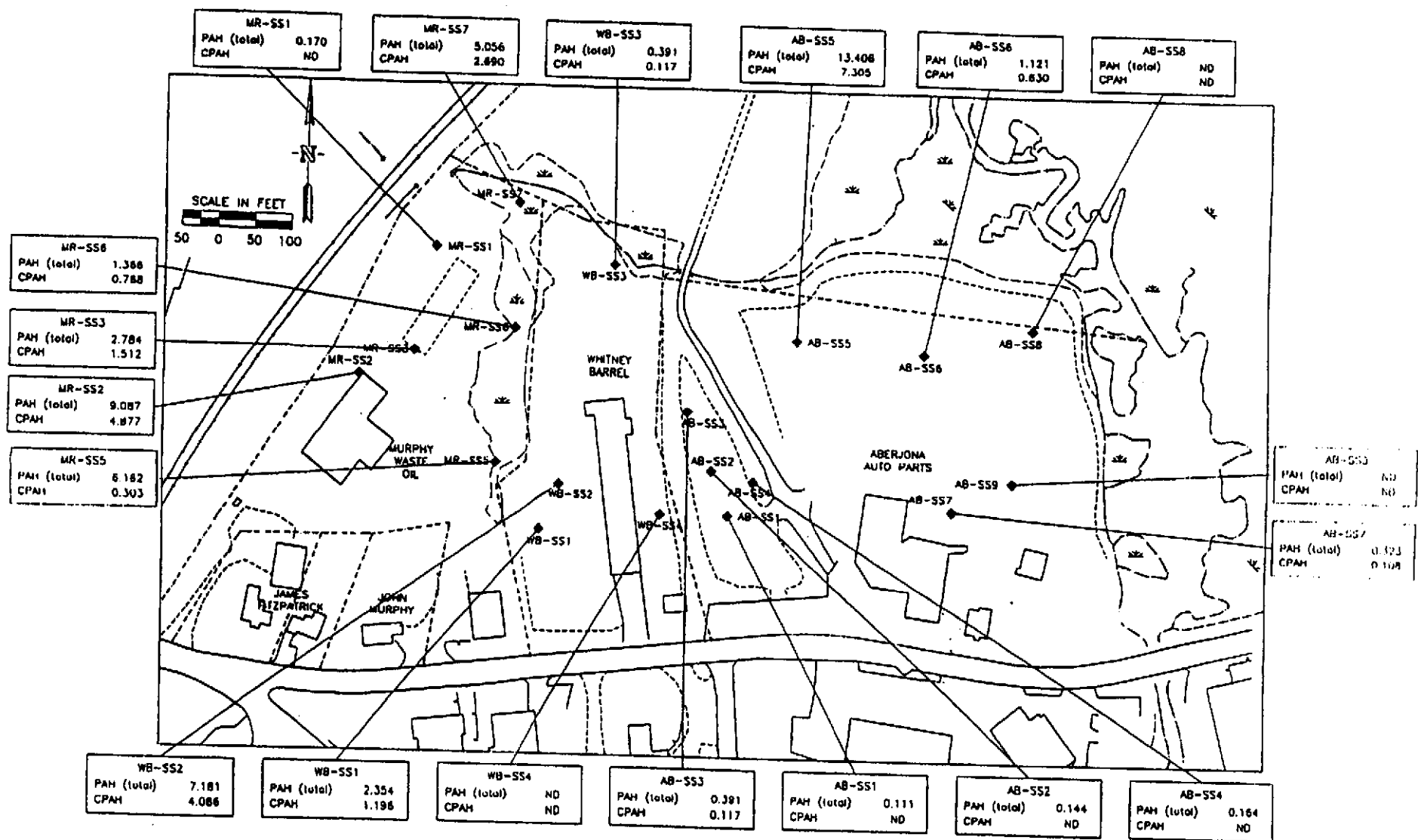
Notes:

- NA = Not Analyzed For
- J = Estimated Quantity
- = Indicates Analyte was not detected in sample
- B = Analyte was found in the blank as well as the sample
- R = Value was rejected due to blank concentration identified in quality control

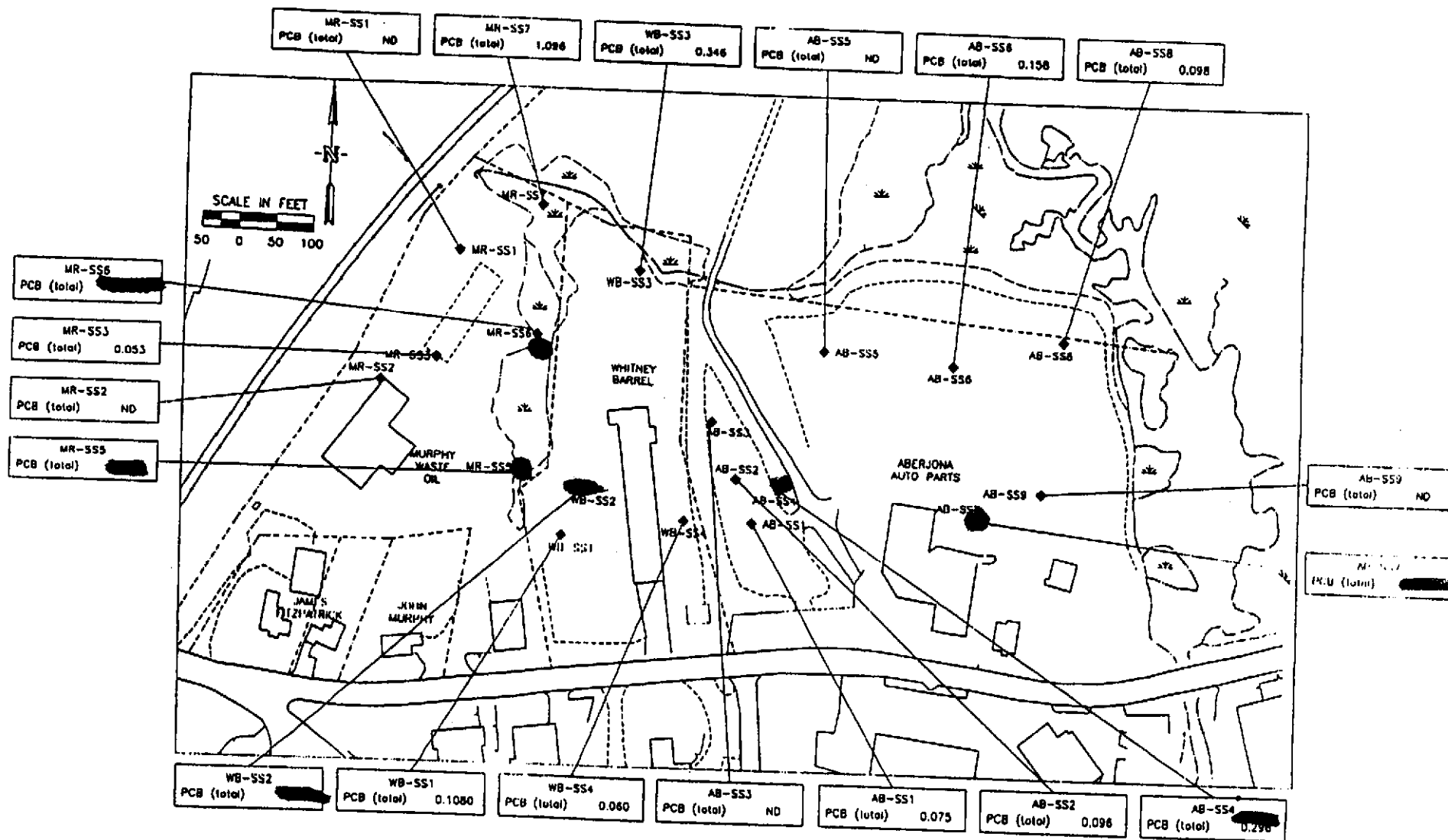
Source: Supplemental Remedial Investigation for Feasibility Study of Wells O & H Site, Woburn, MA: Ebasco Services Inc. 1988
Wells O & H Site Remedial Investigation Report I Volumes I-IV; NUS Corporation

Appendix A.2

Data Summary Tables and Figure Excerpts – RETEC 1994 Draft Remedial Investigation – Southwest Properties



SURFACE SOIL SVOC RESULTS
All Values are in mg/kg



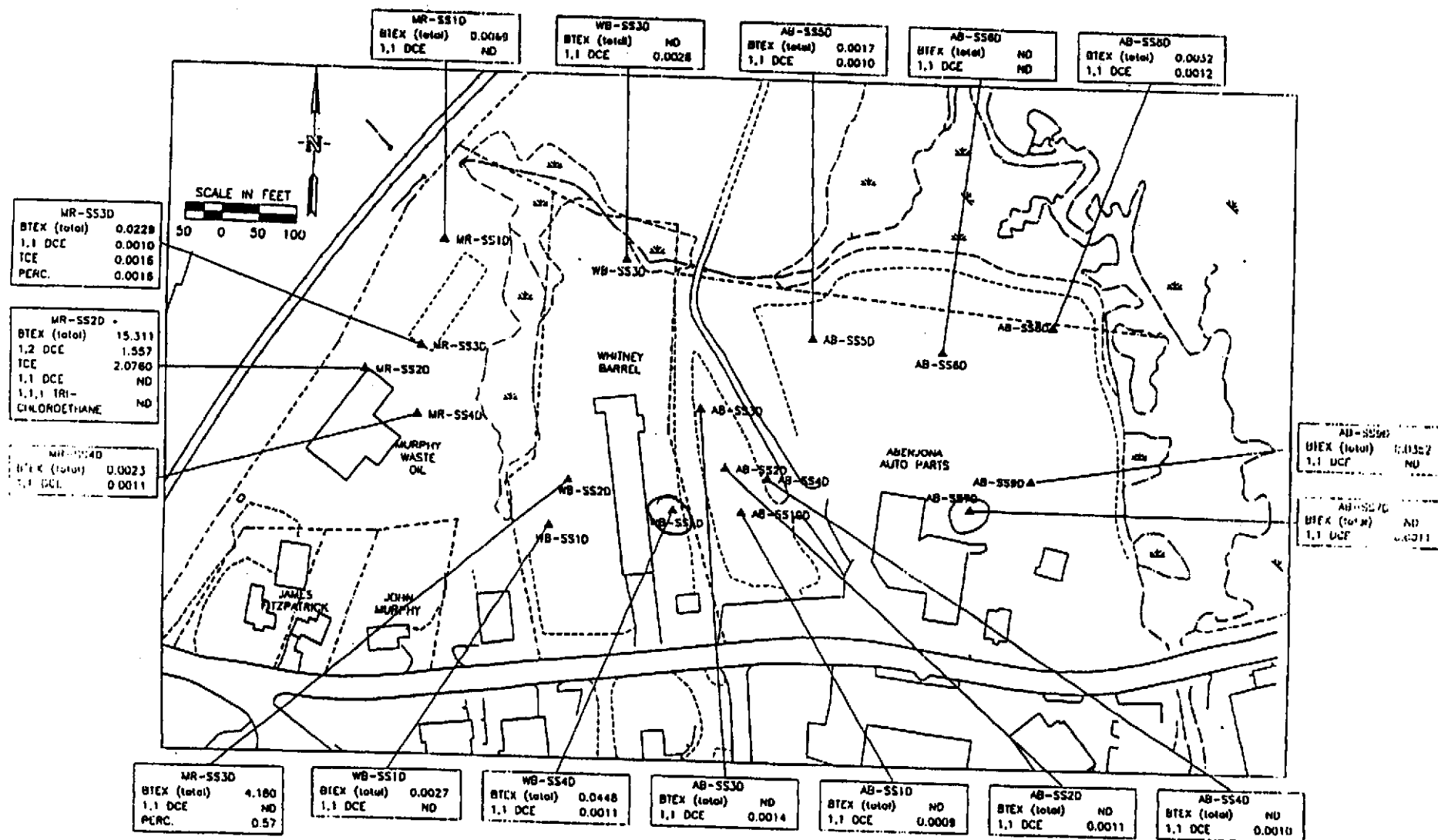
High Street - PCB

SURFACE SOIL PCB RESULTS
All Values are in mg/kg

06818003

FIGURE

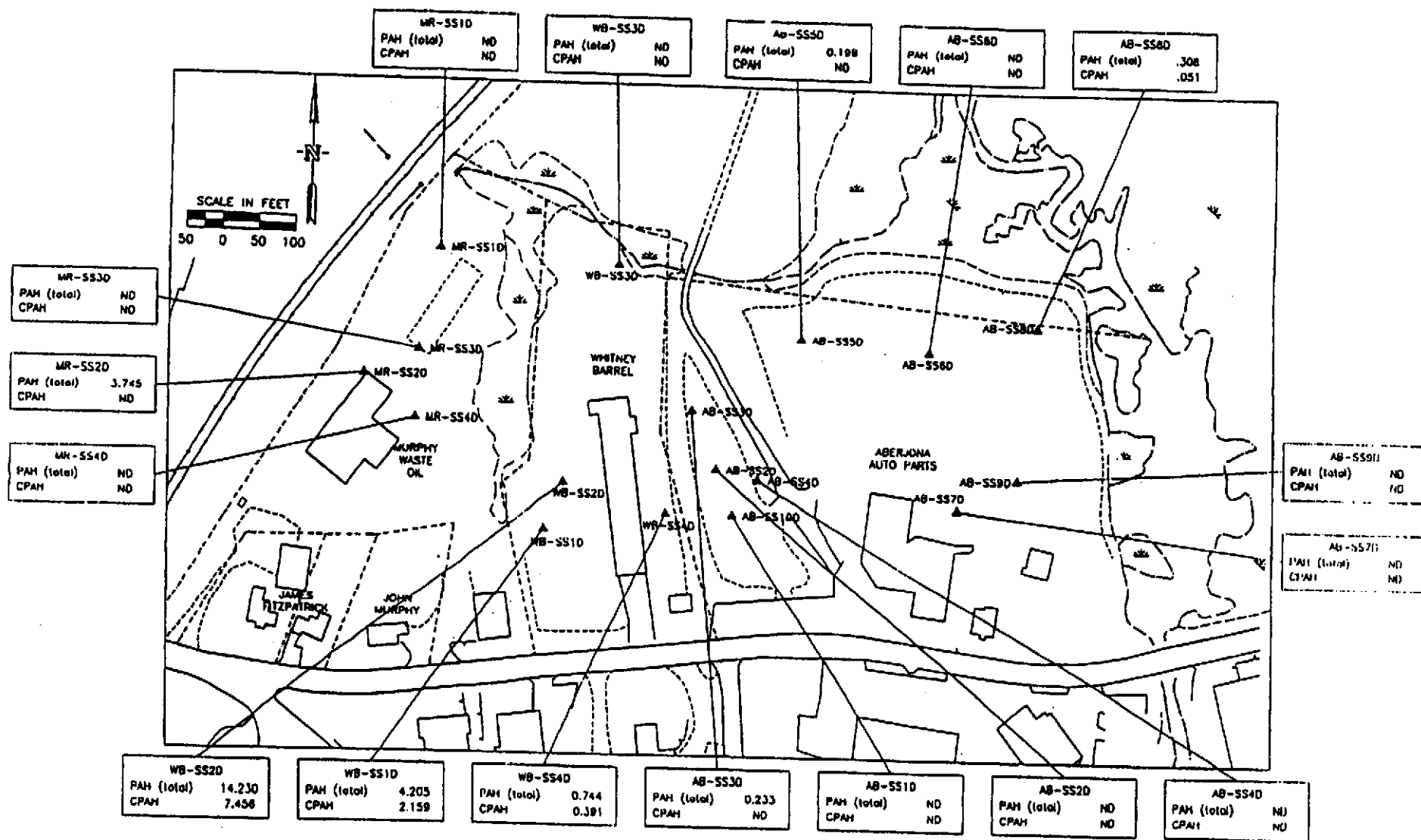
5-3



* 1,2 DCE & TCE Not detected except as noted

SUBSURFACE SOIL VOC RESULTS All Values are in mg/kg

06/15/03
FIGURE
5-5

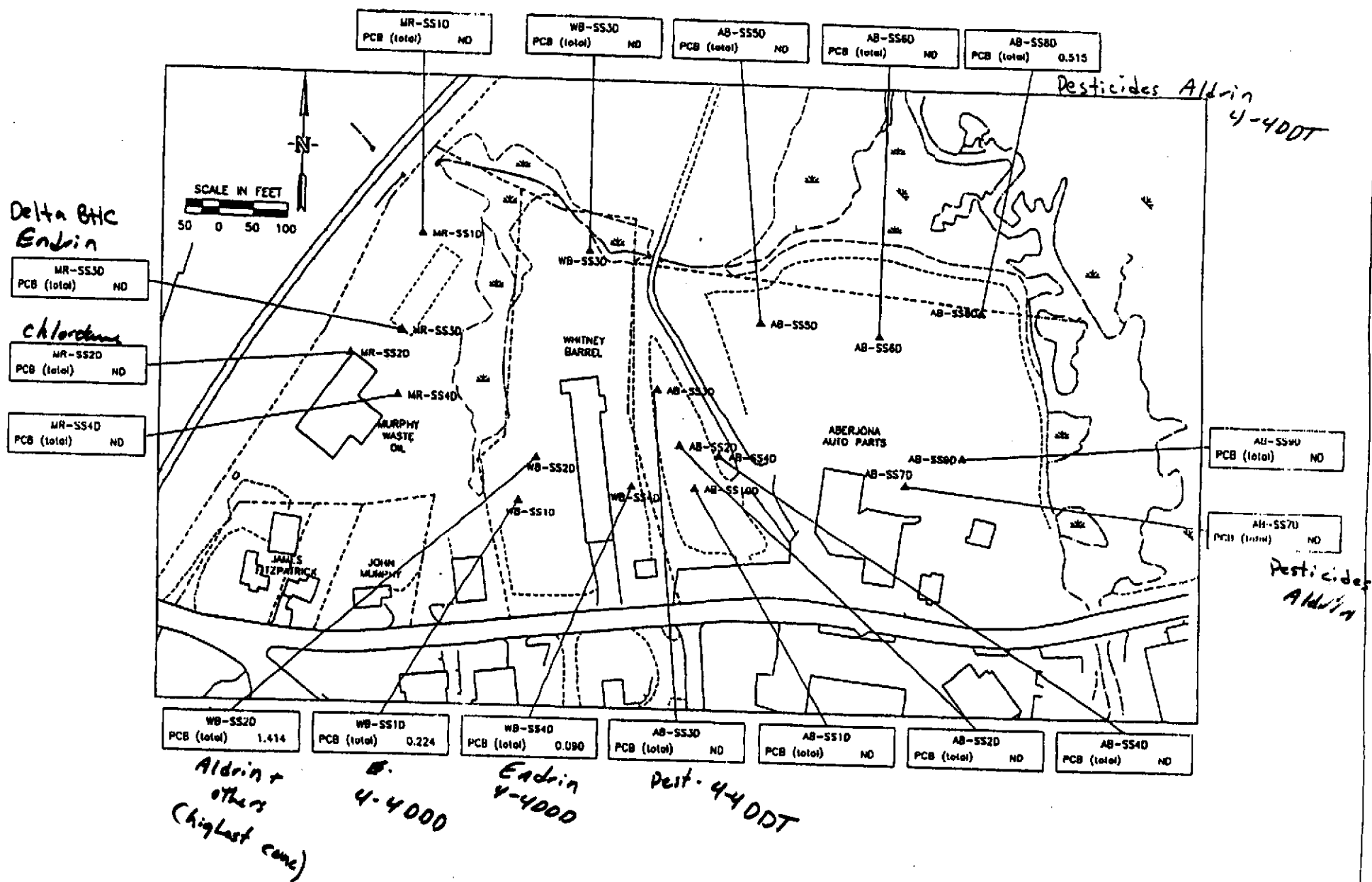


SUBSURFACE SOIL SVOC RESULTS
All Values are in mg/kg

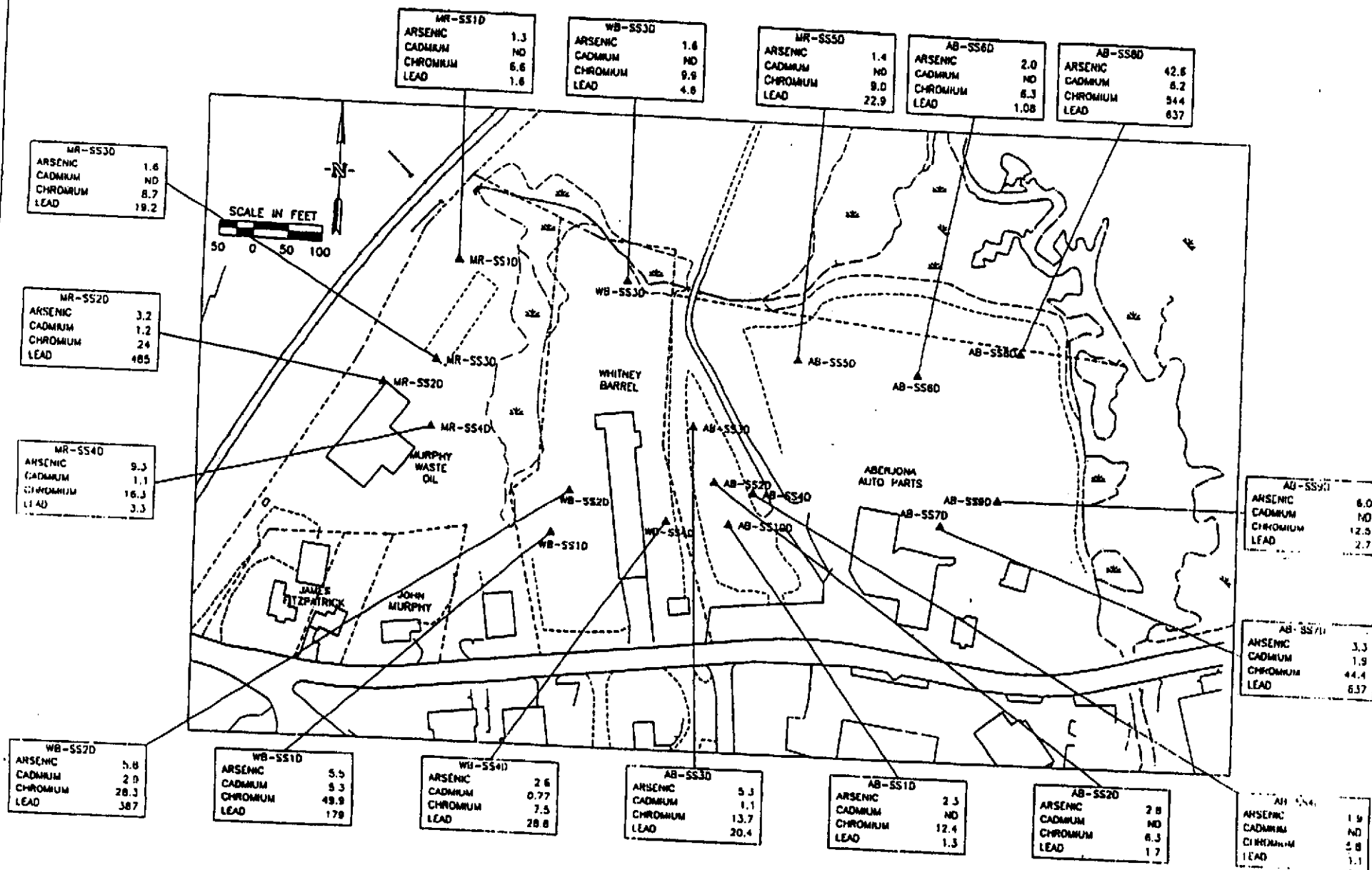
00815003

FIGURE

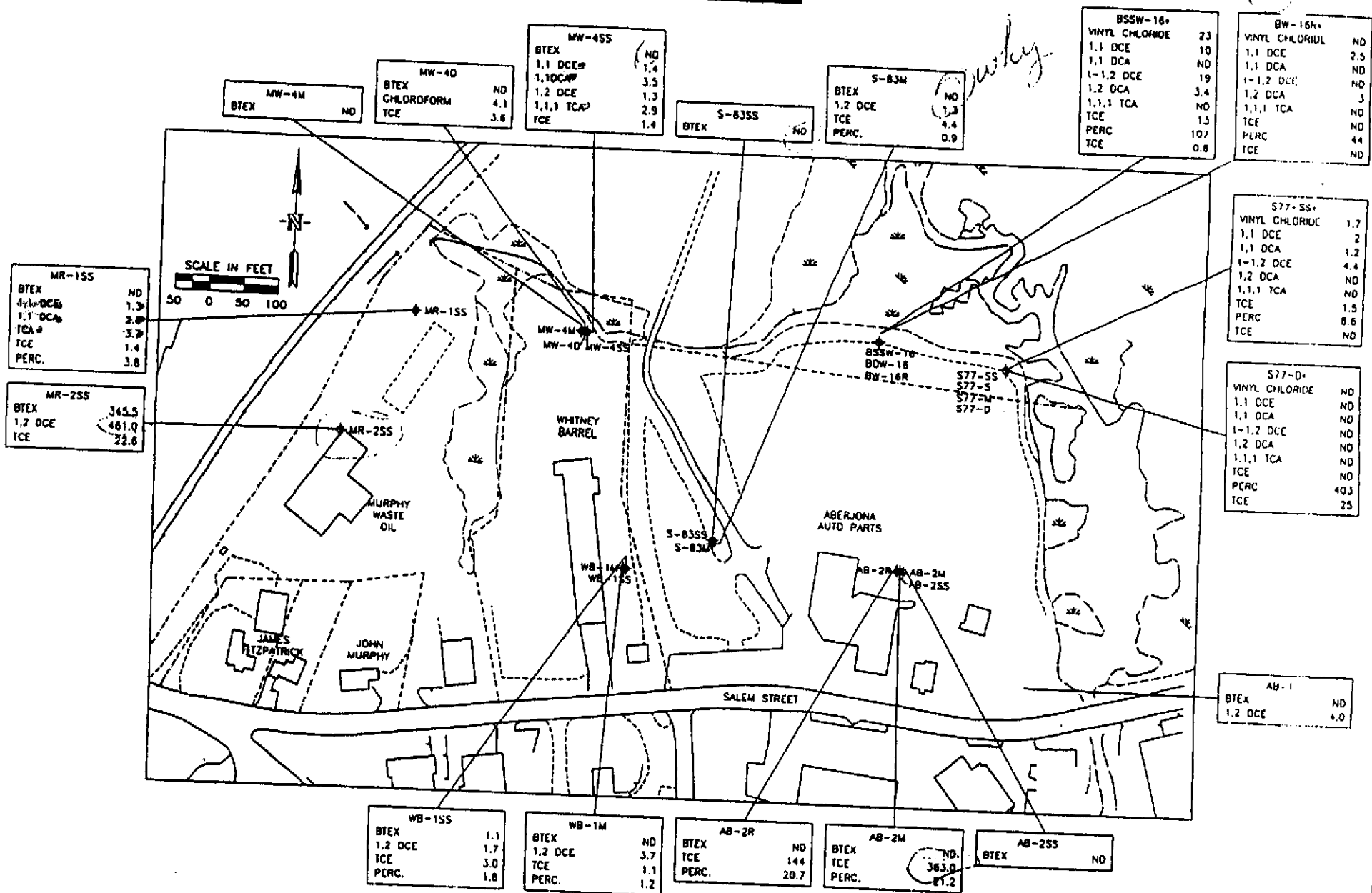
5-6



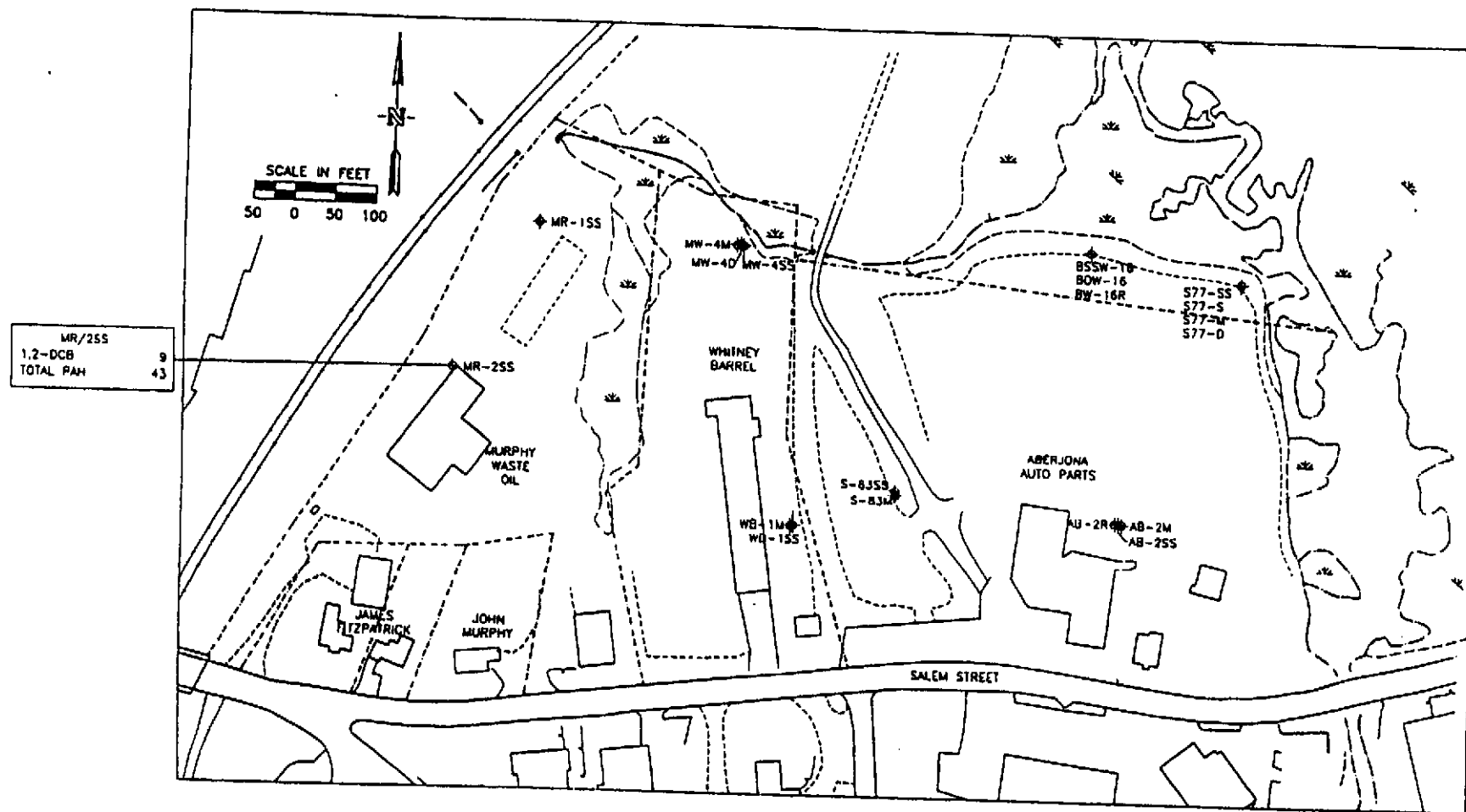
SUBSURFACE SOIL PCB RESULTS
All Values are in mg/kg



SUBSURFACE SOIL METALS RESULTS
All Values are in mg/kg



GROUNDWATER VOC RESULTS
All Values are in ug/L



• Pesticides not detected except as noted.

DETECTED GROUNDWATER SVOC AND PESTICIDE RESULTS
All Values are in ug/L

Acetone	<	0.0089 UJ	<	0.0051 UJ	<	0.0083 UJ	<	0.0091 UJ	<	0.0090 UJ	<	0.0144 UJ	<	0.0330 UJ	<	0
Carbon Disulfide	<	0.0027 U	<	0.0027 U	<	0.0028 U	<	0.0030 U	<	0.0133	<	0.0025 U	<	0.0026 U	<	0
1,1-Dichloroethene	<	0.0012 J	<	0.0011 J	<	0.0028 U	<	0.0011 J	<	0.0048	<	0.0017 J	<	0.0026 U	<	0
1,1-Dichloroethane	<	0.0027 U	<	0.0027 U	<	0.0028 U	<	0.0030 U	<	0.0133	<	0.0025 U	<	0.0026 U	<	0
1,2-Dichloroethene (total)	<	0.0027 U	<	0.0027 U	<	0.0028 U	<	0.0030 U	<	0.0133	<	0.0025 U	<	0.0026 U	<	0
Chloroform	<	0.0027 U	<	0.0027 U	<	0.0028 U	<	0.0030 U	<	0.0133	<	0.0025 U	<	0.0026 U	<	0
1,2-Dichloroethane	<	0.0027 U	<	0.0027 U	<	0.0028 U	<	0.0030 U	<	0.0133	<	0.0025 U	<	0.0026 U	<	0
2-Butanone	<	0.0108 UJ	<	0.0047 UJ	<	0.0053 UJ	<	0.0057 UJ	<	0.0319	<	0.0061 UJ	<	0.0046 UJ	<	0
1,1,1-Trichloroethane	<	0.0027 U	<	0.0027 U	<	0.0028 U	<	0.0030 U	<	0.0133	<	0.0025 U	<	0.0026 U	<	0
Carbon Tetrachloride	<	0.0027 U	<	0.0027 U	<	0.0028 U	<	0.0030 U	<	0.0133	<	0.0025 U	<	0.0026 U	<	0
Bromodichloromethane	<	0.0027 U	<	0.0027 U	<	0.0028 U	<	0.0030 U	<	0.0133	<	0.0025 U	<	0.0026 U	<	0
1,2-Dichloropropane	<	0.0027 U	<	0.0027 U	<	0.0028 U	<	0.0030 U	<	0.0133	<	0.0025 U	<	0.0026 U	<	0
cis-1,3-Dichloropropene	<	0.0027 U	<	0.0027 U	<	0.0028 U	<	0.0030 U	<	0.0133	<	0.0025 U	<	0.0026 U	<	0
Trichloroethene	<	0.0027 U	<	0.0027 U	<	0.0028 U	<	0.0030 U	<	0.0133	<	0.0025 U	<	0.0026 U	<	0
Dibromochloromethane	<	0.0027 U	<	0.0027 U	<	0.0028 U	<	0.0030 U	<	0.0133	<	0.0025 U	<	0.0026 U	<	0
1,1,2-Trichloroethane	<	0.0027 U	<	0.0027 U	<	0.0028 U	<	0.0030 U	<	0.0133	<	0.0025 U	<	0.0026 U	<	0
Benzene	<	0.0027 U	<	0.0027 U	<	0.0028 U	<	0.0030 U	<	0.0133	<	0.0025 U	<	0.0026 U	<	0
trans-1,3-Dichloropropene	<	0.0027 U	<	0.0027 U	<	0.0028 U	<	0.0030 U	<	0.0133	<	0.0025 U	<	0.0026 U	<	0
Bromoform	<	0.0027 U	<	0.0027 U	<	0.0028 U	<	0.0030 U	<	0.0133	<	0.0025 U	<	0.0026 U	<	0
4-Methyl-2-Pentanone	<	0.0027 U	<	0.0027 U	<	0.0028 U	<	0.0030 U	<	0.0133	<	0.0025 U	<	0.0026 U	<	0
Hexanone	<	0.0027 U	<	0.0027 U	<	0.0028 U	<	0.0030 U	<	0.0133	<	0.0025 U	<	0.0026 U	<	0
1,1,2,2-Tetrachloroethane	<	0.0027 U	<	0.0027 U	<	0.0028 U	<	0.0030 U	<	0.0133	<	0.0025 U	<	0.0026 U	<	0
Toluene	<	0.0027 U	<	0.0027 U	<	0.0028 U	<	0.0030 U	<	0.0223	<	0.0025 U	<	0.0026 U	<	0
Chlorobenzene	<	0.0027 U	<	0.0027 U	<	0.0028 U	<	0.0030 U	<	0.0133	<	0.0025 U	<	0.0026 U	<	0
Ethylbenzene	<	0.0027 U	<	0.0027 U	<	0.0028 U	<	0.0030 U	<	0.0160	<	0.0025 U	<	0.0026 U	<	0
Styrene	<	0.0027 U	<	0.0027 U	<	0.0028 U	<	0.0030 U	<	0.0027	<	0.0025 U	<	0.0026 U	<	0
Xylene (total)	<	0.0027 U	<	0.0027 U	<	0.0028 U	<	0.0030 U	<		<	0.0025 U	<	0.0026 U	<	0

Notes:

DUP-LAB is a duplicate sample of AB-SS9

All values in mg/kg

Acetone	<	0.0080 UJ	<	0.0070 UJ	<	0.0110 UJ	<	UJ	<	UJ	<	0.0230 U	<	0.0083 UJ	<
Carbon Disulfide	<	0.0025 U	<	0.0024 U	<	0.0025 U	<	0.0070 U	<	U	<	0.0020 U	<	0.0020 U	<
1,1-Dichloroethene	<	0.0025 U	<	0.0008 J	<	0.0011 J	<	0.0070 U	<	U	<	0.0020 U	<	0.0020 U	<
1,1-Dichloroethane	<	0.0025 U	<	0.0024 U	<	0.0025 U	<	0.0025 U	<	U	<	0.0020 U	<	0.0020 U	<
1,2-Dichloroethene (total)	<	0.0025 U	<	0.0049	<	0.0025 U	<	0.0070 U	<	U	<	0.0020 U	<	0.0020 U	<
Chloroform	<	0.0025 U	<	0.0024 U	<	0.0025 U	<	0.0070 U	<	U	<	0.0020 U	<	0.0020 U	<
1,2-Dichloroethane	<	0.0025 U	<	0.0024 U	<	0.0025 U	<	0.0070 U	<	U	<	0.0020 U	<	0.0020 U	<
2-Butanone	<	0.0025 UJ	<	0.0051 UJ	<	0.0058 UJ	<	U	<	U	<	0.0038	<	0.0022 UJ	<
1,1,1-Trichloroethane	<	0.0025 U	<	0.0024 U	<	0.0025 U	<	0.0070 U	<	U	<	0.0020 U	<	0.0000 U	<
Carbon Tetrachloride	<	0.0025 U	<	0.0024 U	<	0.0025 U	<	0.0070 U	<	U	<	0.0020 U	<	0.0020 U	<
Bromodichloromethane	<	0.0025 U	<	0.0024 U	<	0.0025 U	<	0.0070 U	<	U	<	0.0020 U	<	0.0020 U	<
1,2-Dichloropropane	<	0.0025 U	<	0.0024 U	<	0.0025 U	<	0.0070 U	<	U	<	0.0020 U	<	0.0020 U	<
cis-1,3-Dichloropropene	<	0.0025 U	<	0.0024 U	<	0.0025 U	<	0.0070 U	<	U	<	0.0020 U	<	0.0020 U	<
Trichloroethene	<	0.0025 U	<	0.0018 J	<	0.0025 U	<	0.0070 U	<	U	<	0.0020 U	<	0.0020 U	<
Dibromochloromethane	<	0.0025 U	<	0.0024 U	<	0.0025 U	<	0.0070 U	<	U	<	0.0020 U	<	0.0020 U	<
1,1,2-Trichloroethane	<	0.0025 U	<	0.0024 U	<	0.0025 U	<	0.0070 U	<	U	<	0.0020 U	<	0.0020 U	<
Benzene	<	0.0025 U	<	0.0024 U	<	0.0005 J	<	0.0070 U	<	U	<	0.0020 U	<	0.0020 U	<
trans-1,3-Dichloropropene	<	0.0025 U	<	0.0024 U	<	0.0025 U	<	0.0070 U	<	U	<	0.0020 U	<	0.0020 U	<
Bromoform	<	0.0025 U	<	0.0024 U	<	0.0025 U	<	0.0070 U	<	U	<	0.0020 U	<	0.0020 U	<
4-Methyl-2-Pentanone	<	0.0025 UJ	<	0.0024 UJ	<	0.0025 UJ	<	0.0070 U	<	U	<	0.0020 U	<	0.0020 U	<
2-Hexanone	<	0.0025	<	0.0024	<	0.0025	<	0.0070 U	<	U	<	0.0020 U	<	0.0020 U	<
Tetrachloroethene	<	0.0025 U	<	0.0024 U	<	0.0025 U	<	0.0070 U	<	U	<	0.0020 U	<	0.0020 U	<
1,1,2,2-Tetrachloroethane	<	0.0025 U	<	0.0024 U	<	0.0025 U	<	0.0070 U	<	U	<	0.0020 U	<	0.0020 U	<
Toluene	<	0.0013 J	<	0.0012 J	<	0.0077	<	0.0070 U	<	U	<	0.0020 U	<	0.0017 J	<
Chlorobenzene	<	0.0025 U	<	0.0024 U	<	0.0025 U	<	0.0070 U	<	U	<	0.0020 U	<	0.0020 U	<
Ethylbenzene	<	0.0016 J	<	0.0024 U	<	0.0037	<	0.0070 U	<	U	<	0.0020 U	<	0.0020 U	<
Styrene	<	0.0025 U	<	0.0024 U	<	0.0025 U	<	0.0070 U	<	U	<	0.0020 U	<	0.0020 U	<
Xylene (total)	<	0.0152	<	0.0043	<	0.0195	<	0.0070 U	<	0.0030 U	<	0.0020 U	<	0.0020 U	<

Notes:

DUP-LAB is a duplicate sam
All values in mg/kg

4-Methylphenol	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.709 U	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
N-Nitroso-di-n-propylamine	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.709 U	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
Hexachloroethane	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.709 U	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
Nitrobenzene	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.709 U	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
Isophorone	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.709 U	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
2-Nitrophenol	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.709 U	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
2,4-Dimethylphenol	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.709 U	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
bis(2-chloroethoxy)methane	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.709 U	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
2,4-Dichlorophenol	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.709 U	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
1,2,4-Trichlorobenzene	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.709 U	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
Naphthalene	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.780 U	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
4-Chloroaniline	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.709 U	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
Hexachlorobutadiene	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.709 U	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
4-Chloro-3-methylphenol	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.709 U	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
2-Methylnaphthalene	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	1.418	<	0.035 J	<	0.358 U	<	0.347 U	<	0.355 U
Hexachlorocyclopentadiene	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.709 U	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
2,4,6-Trichlorophenol	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.709 U	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
2,4,5-Trichlorophenol	<	0.926 U	<	0.896 U	<	0.958 U	<	1.029 U	<	1.773 U	<	0.877 U	<	0.896 U	<	0.868 U	<	0.887 U
2-Chloronaphthalene	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.709 U	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
2-Nitroaniline	<	0.926 U	<	0.896 U	<	0.958 U	<	1.029 U	<	1.773 U	<	0.877 U	<	0.896 U	<	0.868 U	<	0.887 U
Dimethylphthalate	<	0.370 U	<	0.358 U	<	0.383 U	<	0.041 J	<	0.709 U	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
Acenaphthylene	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.142 J	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
1-Nitrotoluene	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.709 U	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
o-Aniline	<	0.926 UJ	<	0.896 UJ	<	0.958 UJ	<	1.029 UJ	<	1.773 UJ	<	0.877 U	<	0.896 UJ	<	0.868 UJ	<	0.887 U
Acenaphthene	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.071 J	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
2,4-Dinitrophenol	<	0.926 U	<	0.896 U	<	0.958 U	<	1.029 U	<	1.773 U	<	0.877 U	<	0.896 U	<	0.868 U	<	0.887 U
4-Nitrophenol	<	0.926 U	<	0.896 U	<	0.958 U	<	1.029 U	<	1.773 U	<	0.877 U	<	0.896 U	<	0.868 U	<	0.887 U
Dibenzofuran	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.142 J	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
2,4-Dinitrotoluene	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.709 U	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
Diethylphthalate	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.709 U	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
4-Chlorophenyl-phenylether	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.709 U	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
Fluorene	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.142 J	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
4-Nitroaniline	<	0.926 U	<	0.896 U	<	0.958 U	<	1.029 U	<	1.773 U	<	0.877 U	<	0.896 U	<	0.868 U	<	0.887 U
4,6-Dinitro-2-methylphenol	<	0.926 U	<	0.896 U	<	0.958 U	<	1.029 U	<	1.773 UJ	<	0.877 UJ	<	0.896 U	<	0.868 U	<	0.887 U
N-Nitrosodiphenylamine (1)	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.709 UJ	<	0.351 UJ	<	0.358 U	<	0.347 U	<	0.355 U
4-Bromophenyl-phenylether	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.709 UJ	<	0.351 UJ	<	0.358 U	<	0.347 U	<	0.355 U
Hexachlorobenzene	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.709 UJ	<	0.351 UJ	<	0.358 U	<	0.347 U	<	0.355 U
Pentachlorophenol	<	0.926 U	<	0.896 U	<	0.958 U	<	1.029 U	<	1.773 UJ	<	0.877 UJ	<	0.896 U	<	0.868 U	<	0.355 U
Phenanthrene	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	1.277 J	<	0.035 J	<	0.036 J	<	0.347 U	<	0.355 U
Anthracene	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.284 J	<	0.351 UJ	<	0.358 U	<	0.347 U	<	0.355 U
Carbazole	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.709 UJ	<	0.351 UJ	<	0.358 U	<	0.347 U	<	0.355 U
Di-n-butylphthalate	<	0.074 J	<	0.108 J	<	0.038 J	<	0.123 J	<	0.142 J	<	0.211 J	<	0.072 J	<	0.111 J	<	0.355 U
Fluoranthene	<	0.037 J	<	0.072 J	<	0.077 J	<	0.082 J	<	1.702 J	<	0.070 J	<	0.108 J	<	0.347 U	<	0.355 U
Pyrene	<	0.074 J	<	0.072 J	<	0.115 J	<	0.082 J	<	1.277	<	0.140 J	<	0.072 J	<	0.347 U	<	0.355 U
Butylbenzylphthalate	<	0.593	<	0.573	<	0.038 J	<	0.288 J	<	0.638 J	<	0.211 J	<	0.072 J	<	0.347 U	<	0.355 U
3,3'-Dichlorobenzidine	<	0.370 UJ	<	0.358 UJ	<	0.383 UJ	<	0.412 UJ	<	0.709 U	<	0.351 UJ	<	0.358 UJ	<	0.347 UJ	<	0.355 U
Benzo(a)anthracene	<	0.370 U	<	0.358 U	<	0.380 J	<	0.412 U	<	1.064	<	0.070 J	<	0.036 J	<	0.347 U	<	0.355 U
Chrysene	<	0.370 U	<	0.358 U	<	0.077 J	<	0.412 U	<	1.489	<	0.105 J	<	0.072 J	<	0.347 U	<	0.355 U
bis(2-ethylhexyl)phthalate	<	1.111 U	<	0.358 U	<	0.383 U	<	0.412 U	<	2.624 U	<	0.947 UJ	<	0.358 U	<	0.347 U	<	0.355 U
Di-n-octylphthalate	<	0.778	<	0.358 U	<	0.383 U	<	0.412 U	<	0.071 J	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
Benzo(b)fluoranthene	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	1.560	<	0.140 J	<	0.358 U	<	0.347 U	<	0.355 U
Benzo(k)fluoranthene	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	1.064	<	0.070 J	<	0.358 U	<	0.347 U	<	0.355 U
Benzo(a)pyrene	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	1.064	<	0.070 J	<	0.358 U	<	0.347 U	<	0.355 U
Indeno(1,2,3-cd)pyrene	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	1.064	<	0.175 J	<	0.358 U	<	0.347 U	<	0.355 U
z(a,h)anthracene	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	0.709 U	<	0.351 U	<	0.358 U	<	0.347 U	<	0.355 U
z(g,h,i)perylene	<	0.370 U	<	0.358 U	<	0.383 U	<	0.412 U	<	1.206	<	0.246 J	<	0.358 U	<	0.347 U	<	0.355 U

2,2-Dichloropropane	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.427 U	<
4-Methylphenol	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.427 U	<
N-Nitroso-di-n-propylamine	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.427 U	<
Hexachloroethane	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.427 U	<
Nitrobenzene	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.427 U	<
Isophorone	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.427 U	<
2-Nitrophenol	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.427 U	<
2,4-Dimethylphenol	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.427 U	<
bis(2-chloroethoxy)methane	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.427 U	<
2,4-Dichlorophenol	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.427 U	<
1,2,4-Trichlorobenzene	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.427 U	<
Naphthalene	<	0.340 U	<	0.344 U	<	0.344 U	<	1.010 U	<	0.427 U	<
4-Chloroaniline	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.427 U	<
Hexachlorobutadiene	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.427 U	<
4-Chloro-3-methylphenol	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.427 U	<
2-Methylnaphthalene	<	0.340 U	<	0.035 J	<	0.069 J	<	1.010 U	<	0.427 U	<
Hexachlorocyclopentadiene	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.427 U	<
2,4,6-Trichlorophenol	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.427 U	<
2,4,5-Trichlorophenol	<	0.850 U	<	0.877 U	<	0.859 U	<	2.525 U	<	1.068 U	<
2-Chloronaphthalene	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.427 U	<
2-Nitroaniline	<	0.850 U	<	0.877 U	<	0.859 U	<	2.525 U	<	1.068 U	<
Dimethylphthalate	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.043 J	<
Acenaphthylene	<	0.340 U	<	0.070 J	<	0.344 U	<	1.010 U	<	0.427 U	<
2,6-Dinitrotoluene	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.427 U	<
3-Nitroaniline	<	0.850 U	<	0.877 U	<	0.859 U	<	2.525 U	<	1.068 U	<
Acenaphthene	<	0.340 U	<	0.070 J	<	0.344 U	<	1.010 U	<	0.427 U	<
2,4-Dinitrophenol	<	0.850 U	<	0.877 U	<	0.859 U	<	2.525 U	<	1.068 U	<
4-Nitrophenol	<	0.850 U	<	0.877 U	<	0.859 U	<	2.525 U	<	1.068 U	<
Dibenzofuran	<	0.340 U	<	0.035 J	<	0.344 U	<	1.010 U	<	0.427 U	<
2,4-Dinitrotoluene	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.427 U	<
Diethylphthalate	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.427 U	<
4-Chlorophenyl-phenylether	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.427 U	<
Fluorene	<	0.340 U	<	0.070 J	<	0.344 U	<	1.010 U	<	0.427 U	<
4-Nitroaniline	<	0.850 U	<	0.877 U	<	0.859 U	<	2.525 U	<	1.068 U	<
4,6-Dinitro-2-methylphenol	<	0.850 U	<	0.877 U	<	0.859 U	<	2.525 U	<	1.068 U	<
N-Nitrosodiphenylamine (1)	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.427 U	<
4-Bromophenyl-phenylether	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.427 U	<
Hexachlorobenzene	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.427 U	<
Pentachlorophenol	<	0.850 U	<	0.877 U	<	0.859 U	<	2.525 U	<	1.068 U	<
Phenanthrene	<	0.034 J	<	0.772 U	<	0.275 J	<	0.202 J	<	0.128 J	<
Anthracene	<	0.340 U	<	0.140 J	<	0.344 U	<	1.010 U	<	0.427 U	<
Carbazole	<	0.340 U	<	0.070 J	<	0.344 U	<	1.010 U	<	0.427 U	<
Di-n-butylphthalate	<	0.340 U	<	0.070 J	<	0.344 U	<	0.404 J	<	0.128 J	<
Fluoranthene	<	0.068 J	<	1.193	<	0.378	<	0.303 J	<	0.214 J	<
Pyrene	<	0.068 J	<	1.158	<	0.344	<	0.303 J	<	0.171 J	<
Butylbenzylphthalate	<	0.340 U	<	0.035 J	<	0.344 U	<	1.010 U	<	0.427 U	<
3,3'-Dichlorobenzidine	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.427 U	<
Benzo(a)anthracene	<	0.340 U	<	0.702	<	0.172 J	<	0.101 J	<	0.128 J	<
Chrysene	<	0.340 U	<	0.912	<	0.309 U	<	0.202 J	<	0.214 J	<
bis(2-ethylhexyl)phthalate	<	0.442 U	<	0.351 U	<	0.344 U	<	5.051 J	<	0.128 J	<
Di-n-octylphthalate	<	0.340 U	<	0.351 U	<	0.344 U	<	1.010 U	<	0.427 U	<
Benzo(b)fluoranthene	<	0.340 U	<	1.018	<	0.378 U	<	1.010 U	<	0.171 J	<
Benzo(k)fluoranthene	<	0.340 U	<	0.598	<	0.206 J	<	1.010 U	<	0.085 J	<
Benzo(a)pyrene	<	0.340 U	<	0.807	<	0.069 J	<	1.010 U	<	0.085 J	<
Indeno(1,2,3-cd)pyrene	<	0.340 U	<	0.702	<	0.309 J	<	1.010 U	<	0.085 J	<
Dibenz(a,h)anthracene	<	0.340 U	<	0.140 J	<	0.069 J	<	1.010 U	<	0.427 U	<
Benzo(g,h,i)perylene	<	0.340 U	<	0.737	<	0.275 J	<	1.010 U	<	0.085 J	<

Page 7 of 22

Endosulfan I	<	0.0017 U	<	0.0017 U	<	0.0017 U	<	0.0050 U	<	0.0021 U	<	0.0
dieldrin	<	0.0034 U	<	0.0035 U	<	0.0034 U	<	0.0101 UJ	<	0.0043 UJ	<	0.0
4,4'-DDE	<	0.0034 U	<	0.0035 U	<	0.0034 U	<	0.0101 U	<	0.0078	<	0.0
Endrin		0.0030 J		0.0067 J	<	0.0034 U	<	0.0101 UJ	<	0.0043 UJ	<	0.0
Endosulfan II	<	0.0034 U	<	0.0035 U	<	0.0034 U	<	0.0101 U	<	0.0043 U	<	0.0
4,4'-DDD	<	0.0034 U	<	0.0035 U	<	0.0034 U	<	0.0374 J		0.0483		0.0
Endosulfan Sulfate	<	0.0034 U	<	0.0035 U	<	0.0034 U	<	0.0101 U	<	0.0043 U	<	0.0
4,4'-DDT	<	0.0034 U	<	0.0035 U	<	0.0034 U		0.0169 J		0.1200 J		0.0
Methoxychlor	<	0.0170 U	<	0.0170 U	<	0.0170 U	<	0.0500 U	<	0.0210 U	<	0.0
Endrin Ketone	<	0.0034 U	<	0.0035 U	<	0.0034 U	<	0.0101 U	<	0.0043 U	<	0.0
Endring aldehyde	<	0.0034 U	<	0.0035 U	<	0.0034 U		0.0177		0.0043 U		0.0
alpha-chlordane		0.0520		0.0164 J	<	0.0017 U		0.3170		0.8920		0.0
gamma-chlordane		0.0290		0.0097 J	<	0.0017 U		0.2510		1.9770		0.0
Toxaphene	<	0.1700 U	<	0.1750 U	<	0.1710 U	<	0.0503 U	<	0.2140 U	<	0.0
Aroclor 1016	<	0.0340 U	<	0.0350 U	<	0.0340 U	<	0.1010 U	<	0.0430 U	<	0.0
Aroclor 1221	<	0.0680 U	<	0.0700 U	<	0.0690 U	<	0.2010 U	<	0.0850 U	<	0.0
Aroclor 1232	<	0.0340 U	<	0.0350 U	<	0.0340 U	<	0.1010 U	<	0.0430 U	<	0.0
Aroclor 1242	<	0.0340 U	<	0.0350 U	<	0.0340 U	<	0.1010 U	<	0.0430 U	<	0.0
Aroclor 1248	<	0.0340 U	<	0.0350 U	<	0.0340 U	<	0.1010 U	<	0.0430 U	<	0.0
Aroclor 1254	<	0.0340 U	<	0.0350 U	<	0.0340 U		5.1220 J				0.0
Aroclor 1260	<	0.0340 U	<	0.0350 U	<	0.0530		2.1570 J				0.0

Cadmium	1.6	1.4 B	0.92	2.1	4.3	5.4	2.5	8.7	2.1	53	5.9 J	5.1 J	1.4 J
Calcium	4,356	1,409	844	3,006	9,301	5,765	3,839	6,452	9,155	5,839	7,935 J	3,896 J	1,399 J
Chromium	13.2 J	11.9 J	█ J	16.8 J	18.2	20.8	12.8 J	8.8	8.4	15.7	184 J	60.1 J	618 J
Cobalt	7.2 B	3.8 B	6.9 B	5.8 B	8.4	11.1	9.8	12.1	20.2	12.6	7.5	8.9	2.7 B
Copper	26.7	92.6	16.4	46.0	106	104	40.6	85.4	20.2	59.7	54.8 J	68.9 J	21.1 J
Iron	17,161 J	16,923 J	12,460 J	13,287 J	35,395	39,064	24,103 J	32,469	36,838	32,590	34,925 J	44,810 J	13,928 J
Lead	129 J	365 J	49.7 J	195 J	838	646	480 J	182	█ J	892 J	823 J	1207 J	524 J
Magnesium	3,491	1,548	2,590	2,175	4,535	4,918	3,522	4,713	7,691	5,376	2,621	2,843	1,296
Manganese	205 J	132 J	211 J	182 J	269	280	192 J	363	315	249	294 J	344 J	104 J
Mercury	0.18	█	< 0.09 U	< 0.09 U	< 0.089 U	< 0.078 U	█ 0.12	< 0.093 U	< 0.093 U	█ 0.094	0.29 J	0.55 J	< 0.09
Nickel	7.2	10.4	7.7	16.0	51.8	29.3	10.7	29.6	13.1	25.3	5.4 J	27.2 J	11.6 J
Potassium	682 B	266 B	480 B	523 B	666 B	980	1,087	877	2,458	1,142	806	762	279 B
Selenium	< 0.45 U	█ 0.44	< 0.47 U	< 0.50 U	< 0.49 B	< 0.42 U	< 0.44 U	< 0.53 U	0.48 U	< 0.42 U	< 0.44 U	< 0.43 U	0.53 J
Silver	0.73 B	< 0.72 U	0.92 B	< 0.80 U	1.5	1.8	0.87 B	1.7	3.6	0.28	< 0.71 U	1.2 B	0.94 B
Sodium	84.2 B	56.1 B	50.1 B	76.6 B	281 B	152 B	95.7 B	156 B	212 B	190 B	228 B	254 B	51.0 B
Thallium	< 0.15 U	< 0.15 U	< 0.16 U	< 0.17 U	< 0.1 U	< 0.1 U	< 0.15 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.15 U	< 0.14 U	< 0.16 U
Vanadium	21.9	10.7	22.1	17.6	28.7 J	31.5 J	22.8	30.0 J	51.7 J	35.1 J	4.4 B	25.0	17.5
Zinc	85.8	111	█	147	796	737	143	883	98.1	501	42.1 J	244 J	97.0 J
Cyanide	< 0.19 U	< 0.21 U	< 0.22 U	< 0.23 U	< 0.20 U	< 0.20 U	< 0.21 U	< 0.20 U	< 0.20 U	< 0.20 U	1.8 J	0.56 J	0.36 J

Carbon Disulfide	< 0.0030 U	< 0.0030 U	< 0.0029 U	< 0.0028 U	< 0.0028 U	< 0.0029 U	< 0.0033 U	< 0.0028 U	< 0.0038 UJ	< 0.0042
1,1-Dichloroethene	0.0009 J	< 0.0030 J	0.0011 J	0.0014 J	0.0010 J	0.0010 J	0.0017	0.0011 J	0.0012 J	< 0.0042
1,1-Dichloroethane	< 0.0030 U	< 0.0030 U	< 0.0029 U	< 0.0028 U	< 0.0028 U	< 0.0029 U	< 0.0033 U	< 0.0028 U	< 0.0038 UJ	< 0.0042
1,2-Dichloroethene (total)	< 0.0030 U	< 0.0030 U	< 0.0029 U	< 0.0028 U	< 0.0028 U	< 0.0029 U	< 0.0033 U	< 0.0028 U	< 0.0038 UJ	< 0.0042
Chloroform	< 0.0030 U	< 0.0030 U	< 0.0029 U	< 0.0028 U	< 0.0028 U	< 0.0029 U	< 0.0033 U	< 0.0028 U	< 0.0038 UJ	< 0.0042
1,2-Dichloroethane	< 0.0030 U	< 0.0030 U	< 0.0029 U	< 0.0028 U	< 0.0028 U	< 0.0029 U	< 0.0033 U	< 0.0028 U	< 0.0038 UJ	< 0.0042
2-Butanone	0.0069 UJ	0.0060 UJ	0.0053 UJ	0.0044 UJ	0.0102 UJ	0.0061 UJ	0.0070 UJ	0.0068 UJ	0.0082 UJ	0.0175
1,1,1-Trichloroethane	< 0.0030 U	< 0.0030 U	< 0.0029 U	< 0.0028 U	< 0.0028 U	< 0.0029 U	< 0.0033 U	< 0.0028 U	< 0.0038 UJ	< 0.0042
Carbon Tetrachloride	< 0.0030 U	< 0.0030 U	< 0.0029 U	< 0.0028 U	< 0.0028 U	< 0.0029 U	< 0.0033 U	< 0.0028 U	< 0.0038 UJ	< 0.0042
Bromodichloromethane	< 0.0030 U	< 0.0030 U	< 0.0029 U	< 0.0028 U	< 0.0028 U	< 0.0029 U	< 0.0033 U	< 0.0028 U	< 0.0038 UJ	< 0.0042
1,2-Dichloropropane	< 0.0030 U	< 0.0030 U	< 0.0029 U	< 0.0028 U	< 0.0028 U	< 0.0029 U	< 0.0033 U	< 0.0028 U	< 0.0038 UJ	< 0.0042
cis-1,3-Dichloropropene	< 0.0030 U	< 0.0030 U	< 0.0029 U	< 0.0028 U	< 0.0028 U	< 0.0029 U	< 0.0033 U	< 0.0028 U	< 0.0038 UJ	< 0.0042
Trichloroethene	< 0.0030 U	< 0.0030 U	< 0.0029 U	< 0.0028 U	< 0.0028 U	< 0.0029 U	< 0.0033 U	< 0.0028 U	< 0.0038 UJ	< 0.0042
Dibromochloromethane	< 0.0030 U	< 0.0030 U	< 0.0029 U	< 0.0028 U	< 0.0028 U	< 0.0029 U	< 0.0033 U	< 0.0028 U	< 0.0038 UJ	< 0.0042
1,1,2-Trichloroethane	< 0.0030 U	< 0.0030 U	< 0.0029 U	< 0.0028 U	< 0.0028 U	< 0.0029 U	< 0.0033 U	< 0.0028 U	< 0.0038 UJ	< 0.0042
Benzene	< 0.0030 U	< 0.0030 U	< 0.0029 U	< 0.0028 U	< 0.0028 U	< 0.0029 U	< 0.0033 U	< 0.0028 U	< 0.0038 UJ	< 0.0042
trans-1,3-Dichloropropene	< 0.0030 U	< 0.0030 U	< 0.0029 U	< 0.0028 U	< 0.0028 U	< 0.0029 U	< 0.0033 U	< 0.0028 U	< 0.0038 UJ	< 0.0042
Bromoform	< 0.0030 U	< 0.0030 U	< 0.0029 U	< 0.0028 U	< 0.0028 U	< 0.0029 U	< 0.0033 U	< 0.0028 U	< 0.0038 UJ	< 0.0042
4-Methyl-2-Pentanone	< 0.0030 U	< 0.0030 U	< 0.0029 U	< 0.0028 U	< 0.0028 U	0.0029 UJ	0.0033 UJ	0.0028 U	0.0038 UJ	< 0.0042
2-Hexanone	< 0.0030 U	< 0.0030 U	< 0.0029 U	< 0.0028 U	< 0.0028 U	0.0029 UJ	0.0033 UJ	0.0028 U	0.0038 UJ	< 0.0042
Tetrachloroethene	< 0.0030 U	< 0.0030 U	< 0.0029 U	< 0.0028 U	< 0.0028 U	< 0.0029 U	< 0.0033 U	< 0.0028 U	< 0.0038 UJ	< 0.0042
1,1,2,2-Tetrachloroethane	< 0.0030 U	< 0.0030 U	< 0.0029 U	< 0.0028 U	< 0.0028 U	< 0.0029 U	< 0.0033 U	< 0.0028 U	< 0.0038 UJ	< 0.0042
Toluene	< 0.0030 U	< 0.0030 U	< 0.0029 U	< 0.0028 U	< 0.0028 U	0.0010 J	0.0033 U	0.0028 U	0.0009 J	0.0042
Chlorobenzene	< 0.0030 U	< 0.0030 U	< 0.0029 U	< 0.0028 U	< 0.0028 U	< 0.0029 U	< 0.0033 U	< 0.0028 U	0.0038 UJ	< 0.0042
Ethylbenzene	< 0.0030 U	< 0.0030 U	< 0.0029 U	< 0.0028 U	< 0.0028 U	< 0.0029 U	< 0.0033 U	< 0.0028 U	0.0012 J	0.0039
Styrene	< 0.0030 U	< 0.0030 U	< 0.0029 U	< 0.0028 U	< 0.0028 U	< 0.0029 U	< 0.0033 U	< 0.0028 U	0.0038	< 0.0042
Xylene (total)	< 0.0030 U	< 0.0030 U	< 0.0029 U	< 0.0028 U	< 0.0028 U	0.0007 J	< 0.0033 U	< 0.0028 U	0.0011 J	0.0271

Notes:

OZ-99 is a duplicate sample of AB-SS1D

All values in mg/kg

Carbon Disulfide	<	0.0029 U	<	5.190 U	<	0.0029 U	<	0.0027 U	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0020 U
1,1-Dichloroethene	<	0.0029 U	<	5.190 U	<	0.0010 J	<	0.0011 J	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0020 U
1,1-Dichloroethane	<	0.0029 U	<	5.190 U	<	0.0029 U	<	0.0027 U	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0020 U
1,2-Dichloroethene (total)	<	0.0029 U	<	1.557 J	<	0.0029 U	<	0.0027 U	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0020 U
Chloroform	<	0.0029 U	<	5.190 U	<	0.0029 U	<	0.0027 U	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0020 U
1,2-Dichloroethane	<	0.0029 U	<	5.190 U	<	0.0029 U	<	0.0027 U	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0020 U
2-Butanone		0.0066 UJ		5.190		0.0060 UJ		0.0067 UJ	<	0.0380		0.0220		0.0020 U	<	0.0020 U
1,1,1-Trichloroethane	<	0.0029 U	<	5.190 U	<	0.0029 U	<	0.0027 U	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0020 U
Carbon Tetrachloride	<	0.0029 U	<	5.190 U	<	0.0029 U	<	0.0027 U	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0020 U
Bromodichloromethane	<	0.0029 U	<	5.190 U	<	0.0029 U	<	0.0027 U	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0020 U
1,2-Dichloropropane	<	0.0029 U	<	5.190 U	<	0.0029 U	<	0.0027 U	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0020 U
cis-1,3-Dichloropropene	<	0.0029 U	<	5.190 U	<	0.0029 U	<	0.0027 U	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0020 U
Trichloroethene	<	0.0029 U	<	2.076 J	<	0.0029 U	<	0.0027 U	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0020 U
Dibromochloromethane	<	0.0029 U	<	5.190 U	<	0.0029 U	<	0.0027 U	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0020 U
1,1,2-Trichloroethane	<	0.0029 U	<	5.190 U	<	0.0029 U	<	0.0027 U	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0020 U
Benzene	<	0.0029 U	<	5.190 U	<	0.0029 U	<	0.0027 U	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0020 U
trans-1,3-Dichloropropene	<	0.0029 U	<	5.190 U	<	0.0029 U	<	0.0027 U	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0020 U
Bromoform	<	0.0029 U	<	5.190 U	<	0.0029 U	<	0.0027 U	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0020 U
4-Methyl-2-Pentanone	<	0.0029 UJ	<	5.190 U	<	0.0029 UJ	<	0.0027 UJ	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0020 U
2-Hexanone	<	0.0029	<	5.190 U	<	0.0029	<	0.0027	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0020 U
Tetrachloroethene	<	0.0029 U	<	5.190 U	<	0.0018 J	<	0.0027 U	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0020 U
1,1,2,2-Tetrachloroethane	<	0.0029 U	<	5.190 U	<	0.0029 U	<	0.0027 U	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0020 U
Toluene		0.0006 J		3.114 J		0.0014 J		0.0014 J	<	0.0020 U		0.0017 J	<	0.0020 U	<	0.0020 U
Chlorobenzene	<	0.0029 U	<	5.190 U	<	0.0029 U	<	0.0027 U	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0020 U
Ethylbenzene	<	0.0029 U	<	1.557 J		0.0060	<	0.0027 U	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0020 U
Styrene	<	0.0029 U	<	5.190 U	<	0.0029 U	<	0.0027 U	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0020 U
Xylene (total)		0.0063		10.640		0.0155		0.0009 J	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0020 U

Notes:

QZ-99 is a duplicate sample

All values in mg/kg

2-Methylphenol	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
2,2'-oxybis(1-Chloropropane)	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
4-Methylphenol	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
N-Nitroso-di-n-propylamine	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
Hexachloroethane	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
Nitrobenzene	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
Isophorone	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
2-Nitrophenol	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
2,4-Dimethylphenol	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
bis(2-chloroethoxy)methane	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
2,4-Dichlorophenol	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
1,2,4-Trichlorobenzene	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
Naphthalene	<	0.650 U	<	9.363 U	<	0.402 U	<	0.392 U
4-Chloroaniline	<	0.407 UJ	<	9.363 UJ	<	0.402 U	<	0.392 U
Hexachlorobutadiene	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
4-Chloro-3-methylphenol	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
2-Methylnaphthalene	<	0.407 U	<	1.873 J	<	0.402 U	<	0.392 U
Hexachlorocyclopentadiene	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
2,4,6-Trichlorophenol	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
2,4,5-Trichlorophenol	<	1.016 U	<	23.408 U	<	1.004 U	<	0.980 U
2-Chloronaphthalene	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
2-Nitroaniline	<	1.016 U	<	23.408 U	<	1.004 U	<	0.980 U
Dimethylphthalate	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
Acenaphthylene	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
2,6-Dinitrotoluene	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
3-Nitroaniline	<	1.016 U	<	23.408 U	<	1.004 UJ	<	0.980 UJ
Acenaphthene	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
2,4-Dinitrophenol	<	1.016 U	<	23.408 U	<	1.004 U	<	0.980 U
4-Nitrophenol	<	1.016 U	<	23.408 U	<	1.004 U	<	0.980 U
Dibenzofuran	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
2,4-Dinitrotoluene	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
Diethylphthalate	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
4-Chlorophenyl-phenylether	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
Fluorene	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
4-Nitroaniline	<	1.016 U	<	23.408 U	<	1.004 U	<	0.980 U
4,6-Dinitro-2-methylphenol	<	1.016 U	<	23.408 U	<	1.004 U	<	0.980 U
N-Nitrosodiphenylamine (1)	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
4-Bromophenyl-phenylether	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
Hexachlorobenzene	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
Pentachlorophenol	<	1.016 U	<	23.408 U	<	1.004 U	<	0.980 U
Phenanthrene	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
Anthracene	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
Carbazole	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
Di-n-butylphthalate	<	0.407 U	<	9.363 U	<	0.402 U	<	0.078 J
Fluoranthene	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
Pyrene	<	0.407 U	<	3.745 J	<	0.402 U	<	0.392 U
Butylbenzylphthalate	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
3,3'-Dichlorobenzidine	<	0.407 UJ	<	9.363 UJ	<	0.402 UJ	<	0.392 UJ
Benzo(a)anthracene	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
Chrysene	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
bis(2-ethylhexyl)phthalate	<	3.171	<	9.363 U	<	0.402 U	<	0.392 U
Di-n-octylphthalate	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
Benzo(b)fluoranthene	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
Benzo(k)fluoranthene	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
Benzo(a)pyrene	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
Indeno(1,2,3-cd)pyrene	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
Dibenz(a,h)anthracene	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U
Benzo(g,h,i)perylene	<	0.407 U	<	9.363 U	<	0.402 U	<	0.392 U

heptachlor epoxide	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0019 U	<	0.0019 U	<	0.0020 U	<	0.0023 U	<	0.0020 U	<	0.0025 U
endosulfan I	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0019 U	<	0.0019 U	<	0.0020 U	<	0.0023 U	<	0.0020 U	<	0.0025 U
dieldrin	<	0.0041 UJ	<	0.0041 UJ	<	0.0040 UJ	<	0.0038 UJ	<	0.0039 UJ	<	0.0040 U	<	0.0047 U	<	0.0040 UJ	<	0.0051 U
4,4'-DDE	<	0.0041 U	<	0.0041 U	<	0.0040 U	<	0.0038 U	<	0.0039 U	<	0.0040 U	<	0.0047 U	<	0.0040 U	<	0.0051 U
Endrin	<	0.0041 UJ	<	0.0041 UJ	<	0.0040 UJ	<	0.0038 UJ	<	0.0039 UJ	<	0.0040 U	<	0.0047 U	<	0.0040 UJ	<	0.0051 U
Endosulfan II	<	0.0041 U	<	0.0041 U	<	0.0040 U	<	0.0038 U	<	0.0039 U	<	0.0040 U	<	0.0047 U	<	0.0040 U	<	0.0051 U
4,4'-DDD	<	0.0041 U	<	0.0041 U	<	0.0040 U	<	0.0038 U	<	0.0039 U	<	0.0040 U	<	0.0047 U	<	0.0040 U	<	0.0051 U
Endosulfan Sulfate	<	0.0041 U	<	0.0041 U	<	0.0040 U	<	0.0038 U	<	0.0039 U	<	0.0040 U	<	0.0047 U	<	0.0040 U	<	0.0029 J
4,4'-DDT	<	0.0041 U	<	0.0041 U	<	0.0040 U	<	0.0089	<	0.0039 U	<	0.0040 U	<	0.0047 U	<	0.0040 U	<	0.0220
Methoxychlor	<	0.0200 U	<	0.0200 U	<	0.0200 U	<	0.0190 U	<	0.0190 U	<	0.0200 U	<	U	<	0.0200 U	<	0.0250 U
Endrin Ketone	<	0.0041 U	<	0.0041 U	<	0.0040 U	<	0.0038 U	<	0.0039 U	<	0.0040 U	<	0.0047 U	<	0.0040 U	<	0.0051 U
Endring aldehyde	<	0.0041 U	<	0.0041 U	<	0.0040 U	<	0.0038 U	<	0.0039 U	<	0.0040 U	<	0.0047 U	<	0.0040 U	<	0.0034 J
alpha-chlordane	<	0.0020 U	<	0.0020 U	<	0.0020 U	<	0.0019 U	<	0.0019 U	<	0.0020 U	<	0.0023 U	<	0.0020 U	<	0.0025 U
gamma-chlordane	<	0.0020 U	<	0.0200 U	<	0.0020 U	<	0.0019 U	<	0.0019 U	<	0.0020 U	<	0.0023 U	<	0.0020 U	<	0.0025 U
Toxaphene	<	0.2050 U	<	0.2030 U	<	0.1980 U	<	0.1920 U	<	0.1830 U	<	0.1980 U	<	0.2340 U	<	0.1990 U	<	0.2560 U
Aroclor 1016	<	0.0410 U	<	0.0410 U	<	0.0400 U	<	0.0380 U	<	0.0390 U	<	0.0400 U	<	U	<	0.0400 U	<	0.0510 U
Aroclor 1221	<	0.8200 U	<	0.0810 U	<	0.0790 U	<	0.0770 U	<	0.0770 U	<	0.0790 U	<	0.0840 U	<	0.0800 U	<	0.1020 U
Aroclor 1232	<	0.0410 U	<	0.0410 U	<	0.0400 U	<	0.0380 U	<	0.0390 U	<	0.0400 U	<	U	<	0.0400 U	<	0.0510 U
Aroclor 1242	<	0.0410 U	<	0.0410 U	<	0.0400 U	<	0.0380 U	<	0.0390 U	<	0.0400 U	<	U	<	0.0400 U	<	0.2830
Aroclor 1248	<	0.0410 U	<	0.0410 U	<	0.0400 U	<	0.0380 U	<	0.0390 U	<	0.0400 U	<	U	<	0.0400 U	<	0.0510 U
Aroclor 1254	<	0.0410 U	<	0.0410 U	<	0.0400 U	<	0.0380 U	<	0.0390 U	<	0.0400 U	<	U	<	0.0400 U	<	0.0510 U
Aroclor 1260	<	0.0750 U	<	0.0410 U	<	0.0400 U	<	0.0380 U	<	0.0390 U	<	0.0400 U	<	U	<	0.0400 U	<	0.2320

heptachlor epoxide	<	0.0020 U	<	0.0019 U	<	0.0020 U	<	0.0020 U
endosulfan I	<	0.0020 U	<	0.0019 U	<	0.0020 U	<	0.0020 U
dieldrin	<	0.0041 U	<	0.0037 U	<	0.0040 U	<	0.0040 U
4,4'-DDE	<	0.0041 U	<	0.0037 U	<	0.0040 U	<	0.0040 U
Endrin	<	0.0041 U	<	0.0037 U	<	0.0085	<	0.0040 U
Endosulfan II	<	0.0041 U	<	0.0037 U	<	0.0040 U	<	0.0040 U
4,4'-DDD	<	0.0041 U	<	0.0037 U	<	0.0040 U	<	0.0040 U
Endosulfan Sulfate	<	0.0041 U	<	0.0037 U	<	0.0040 U	<	0.0040 U
4,4'-DDT	<	0.0041 U	<	0.0037 U	<	0.0040 U	<	0.0040 U
Methoxychlor	<	0.0200 U	<	0.0190 U	<	0.0200 U	<	0.0200 U
Endrin Ketone	<	0.0041 U	<	0.0037 U	<	0.0040 U	<	0.0040 U
Endring aldehyde	<	0.0041 U	<	0.0037 U	<	0.0040 U	<	0.0040 U
alpha-chlordane	<	0.0014 J	<	0.1290	<	0.0650	<	0.0020 U
gamma-chlordane	<	0.0020 U	<	0.0710	<	0.1280	<	0.0020 U
Toxaphene	<	0.2030 U	<	0.1870 U	<	0.2010 U	<	0.1960 U
Aroclor 1016	<	0.0410 U	<	0.0370 U	<	0.0400 U	<	0.0390 U
Aroclor 1221	<	0.0810 U	<	0.0750 U	<	0.0800 U	<	0.0780 U
Aroclor 1232	<	0.0410 U	<	0.0370 U	<	0.0400 U	<	0.0390 U
Aroclor 1242	<	0.0410 U	<	0.0370 U	<	0.0400 U	<	0.0390 U
Aroclor 1248	<	0.0410 U	<	0.0370 U	<	0.0400 U	<	0.0390 U
Aroclor 1254	<	0.0410 U	<	0.0370 U	<	0.0400 U	<	0.0390 U
Aroclor 1260	<	0.0410 U	<	0.0370 U	<	0.0400 U	<	0.0390 U

Cadmium	< 0.82 U	< 0.83 U	< 0.75 U	1.1	< 0.78 U	< 0.8 U	< 0.98 U	1.9	8.2	< 1.2 U	5.3 J	2.9 J	<
Calcium	498 B	270 B	128 B	2,220	235	1,589	1,330	7,978	7,374	1,743	7,066 J	2,429 J	<
Chromium	12.4 J	19.0 J	6.3 J	13.7 J	5.8 J	9.0	6.3	44.4 J	544	12.5	48.9 J	28.3 J	<
Cobalt	2.0 B	1.7 B	1.6 B	6.9 B	1.2 B	1.6 B	1.6 B	15.3	13.0	5.8 B	5.71 B	7.3	<
Copper	3.3 B	1.8 B	1.6 B	17.7	2.0 B	3.0 B	1.8 B	19.4	224	2.5 B	27.5 J	58.4 J	<
Iron	3,085 J	3,279 J	3,167 J	14,467 J	3,130 J	3,584	2,646	25,750 J	36,830	4,260	19,474 J	37,377 J	<
Lead	1.3 J	1.7 J	1.7 J	20.4 J	1.1 J	22.9	1.8	20.2 J	637	2.7	179 J	387 J	<
Magnesium	673 B	664 B	626 B	3,413	726 B	965	832 B	5,689	4,669	967 B	2,397	2,537	<
Manganese	26.8 J	26.0 J	21.7 J	281 J	25.5 J	38.5	30.4	178 J	320	32.5	178 J	325 J	<
Mercury	0.12	< 0.10 U	< 0.10 U	< 0.11 U	< 0.08 U	< 0.105 U	< 0.128 U	0.09	1.0	< 0.179 U	0.29 J	0.12 J	<
Nickel	1.8 B	0.83 B	1.3 B	6.0 B	1.1 B	8.6	4.1 B	4.7 B	51.4	6.1 B	13.2 J	21.0 J	<
Potassium	73.2 B	< 59.3 U	135 B	331 B	160 B	266 B	140 B	2,104	1,066	146 B	598 B	1,145	<
Selenium	< 0.50 U	< 0.51 U	< 0.50 U	0.48 B	0.48 B	< 0.47 UJ	< 0.54 UJ	< 0.49 U	1.6	2.2	< 0.48 UJ	0.48 J	<
Silver	< 0.82 U	< 0.83 U	< 0.75 U	< 0.76 U	< 0.78 U	< 0.80 U	< 0.98 U	1.68 B	2.7	< 1.2 U	2.0	< 0.73 U	<
Sodium	< 40.5 U	< 41.3 U	< 37.0 U	59.8 B	< 38.6 U	< 91.7 B	112 B	195 B	317 B	225 B	354 B	235 B	<
Thallium	< 0.17 U	< 0.17 U	< 0.17 U	< 0.16 U	< 0.16 U	< 0.2 U	< 0.2 U	< 0.16 U	< 0.2 U	< 0.2 U	< 0.16 U	< 0.15 U	<
Vanadium	4.2 B	4.8 B	5.1 B	25.1	4.7 B	6.6 J	6.7 J	44.9	32.6 J	20.4 J	17.4	45.2	<
Zinc	7.3	6.8	6.4	48.0	6.5	23.9	9.0	127	1,349	11.1	103 J	182 J	<
Cyanide	< 0.22 U	< 0.22 U	< 0.21 U	< 0.21 U	< 0.21 U	< 0.20 U	< 0.20 U	< 0.23 U	< 0.30 U	< 0.40 U	0.77 J	0.20 J	<

Carbon Disulfide	<	2.0 U	<	2.0 U	<	50.0	<	20.0	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0
1,1-Dichloroethene	<	2.0 U	<	2.0 U	<	50.0	<	20.0	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0
1,1-Dichloroethane	<	2.0 U	<	2.0 U	<	50.0	<	20.0	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0
1,2-Dichloroethene (total)	<	4.0	<	2.0 U	<	50.0	<	20.0	<	2.0 U	<	2.0 U	<	1.3 J	<	1.7 J	<	3.7
Chloroform	<	2.0 U	<	2.0 U	<	50.0	<	20.0	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0
1,2-Dichloroethane	<	2.0 U	<	2.0 U	<	50.0	<	20.0	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0
2-Butanone		4.2 U	<	2.0 U		84.3		30.7		3.7 U	<	2.0 U		3.3 U	<	2.0 U		3.0
1,1,1-Trichloroethane	<	2.0 U	<	2.0 U	<	50.0	<	20.0	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0
Carbon Tetrachloride	<	2.0 U	<	2.0 U	<	50.0	<	20.0	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0
Bromodichloromethane	<	2.0 U	<	2.0 U	<	50.0	<	20.0	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0
1,2-Dichloropropane	<	2.0 U	<	2.0 U	<	50.0	<	20.0	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0
cis-1,3-Dichloropropene	<	2.0 U	<	2.0 U	<	50.0	<	20.0	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0
Trichloroethene	<	2.0 U	<	2.0 U		363.0		144.0	<	2.0 U	<	2.0 U	<	4.4	<	3.0	<	1.1
Dibromochloromethane	<	2.0 U	<	2.0 U	<	50.0	<	20.0	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0
1,1,2-Trichloroethane	<	2.0 U	<	2.0 U	<	50.0	<	20.0	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0
Benzene	<	2.0 U	<	2.0 U	<	50.0	<	20.0	<	2.0 U	<	2.0 U	<	2.0 U	<	1.1 J	<	2.0
trans-1,3-Dichloropropene	<	2.0 U	<	2.0 U	<	50.0	<	20.0	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0
Bromoform	<	2.0 U	<	2.0 U	<	50.0	<	20.0	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0
4-Methyl-2-Pentanone	<	2.0 U	<	2.0 U	<	50.0	<	20.0	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0
2-Hexanone	<	2.0 U	<	2.0 U	<	50.0	<	20.0	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0
Tetrachloroethene	<	2.0 U	<	2.0 U		21.2		20.7	<	2.0 U	<	2.0 U		0.9 J	<	1.8 J		1.2
1,1,2,2-Tetrachloroethane	<	2.0 U	<	2.0 U	<	50.0	<	20.0	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0
Toluene	<	2.0 U	<	2.0 U	<	50.0	<	20.0	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0
Chlorobenzene	<	2.0 U	<	2.0 U	<	50.0	<	20.0	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0
Ethylbenzene	<	2.0 U	<	2.0 U	<	50.0	<	20.0	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0
Styrene	<	2.0 U	<	2.0 U	<	50.0	<	20.0	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0
Xylene (total)	<	2.0 U	<	2.0 U	<	50.0	<	20.0	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0
Sum of BTEX	<	2.0 U	<	2.0 U	<	50.0	<	20.0	<	2.0 U	<	2.0 U	<	2.0 U	<	1.1 J	<	2.0

Notes:

All values in ug/L

Carbon Disulfide	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U
1,1-Dichloroethene	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U
1,1-Dichloroethane	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U
1,2-Dichloroethene (total)	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U
Chloroform	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U
1,2-Dichloroethane	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U
2-Butanone		4.2 U		3.9 U		4.1 U		4.4 U		3.7 U
1,1,1-Trichloroethane	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U
Carbon Tetrachloride	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U
Bromodichloromethane	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U
1,2-Dichloropropane	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U
cis-1,3-Dichloropropene	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U
Trichloroethene	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U
Dibromochloromethane	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U
1,1,2-Trichloroethane	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U
Benzene	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U
trans-1,3-Dichloropropene	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U
Bromoform	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U
4-Methyl-2-Pentanone	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U
2-Hexanone	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U
Tetrachloroethene	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U
1,1,2,2-Tetrachloroethane	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U
Toluene	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U
Chlorobenzene	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U
Ethylbenzene	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U
Styrene	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U
Xylene (total)	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U
Sum of BTEX	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U	<	2.0 U

Notes:

All values in ug/L

Page 20 of 22

Appendix A.3

GHR 1988 Whitney Barrel Soil and Groundwater Data Summary Table Excerpts

Table 2-6 (Continued)
Whitney Barrel Property Soil Analytical Results

Compound	TP-1 U-6'	TP-3 U-5'	TP-6 U-7'	TP-7 U-6.5'	TP-9 U-5'	TP-11 U-6'	TP-12 U-6'	TP-12 Dup U-6'	TP-13 U-7'	TP-15 U-6.5'	TP-17 U-7.5'	TP-18 U-6'	MW-1s U-14'	MW-2s U-14'	MW-3s U-14'	MW-4s U-15.5'	B-1 U-16'	B-2 U-11'	B-3 U-15'	B-4 U-10.5'	B-5 U-10.5'	B-6 U-15'	B-6 rep U-15'	B-7 U-10.5'	B-8 U-11'
Acid Compounds (mg/kg)																									
2,4,5-Trichlorophenol (2)	--	--	--	--	--	--	0.016	0.017	--	0.021	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylphenol	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Methylphenol	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenol	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pesticides/PCBs (ppb)																									
Chlorbne	--	--	--	--	--	36.8	17.6	19.5	0.47	1.98	5.97	0.31	--	0.28	3.6	4.03	0.38	1.61	0.29	6.3	2.12	1.89	3.55	0.06	
PCB-1242	0.11	--	7.26	4.52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
PCB-1254	--	11.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
PCB-1248	--	--	--	--	1.2	--	--	--	--	--	--	--	--	--	--	--	--	--	5.26	--	--	--	--	--	
PCB-1260	--	--	7.01	--	--	46.6	56	94.8	1.03	3.38	8.46	0.54	0.09	--	5.27	0.5	0.07	--	--	0.21	5.36	1.1	0.96	--	
Inorganic Compounds (mg/kg)																									
Aluminum	7,760	4,930	4,080	5,150	3,240	4,210	4,530	4,340	4,670	4,200	3,710	3,590	5,660	3,490	3,570	3,490	6,200	3,770	5,110	3,960	4,650	3,820	3,140	4,850	5,450
Antimony	27	22	32	26	24	--	--	--	--	--	--	--	--	24	--	24	--	22	--	--	22	--	30	--	--
Arsenic	4.4	2.02	3.1	4.16	2.5	4.9	415	375	4	4.9	3.8	2.8	2.9	2.67	7.62	2.25	4.16	3.1	4.7	2.38	3.52	4.2	2.57	4.06	3.3
Barium	34	17	17	20	--	13	--	10	17	22	56	--	18	12	21	17	26	10	40	--	18	21	--	20	14
Cadmium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	556	856	869	748	538	634	392	424	779	872	1,500	422	1,500	909	1,230	890	993	799	1,540	697	1,150	984	661	1,750	596
Chromium	22	8.1	10	19.8	5.9	18	7	10	10	38	420	12	16	7.9	23.8	23.5	20.8	8	28	9.4	51	58	19.8	450	71
Cobalt	6	--	--	5.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	14	5	10	15.8	3.9	6	4	3	10	20	13	4	10	5.9	17.8	33.3	23.8	6	39	5.9	11.8	19	7.9	15.8	9.5
Iron	9,270	4,770	6,610	10,000	4,770	5,140	3,500	3,190	6,530	8,170	4,980	3,450	7,330	4,940	7,440	5,200	6,980	4,390	20,200	4,600	5,500	11,000	4,440	4,920	6,370
Lead	78	17.2	42	101	12.2	32	10	--	52	72	252	10	54	13.9	95	35.3	19.8	11	233	16.3	33.3	82	21.8	61.3	51.5
Magnesium	1,870	1,300	1,290	1,010	846	936	882	980	781	1,060	1,070	846	1,830	1,230	1,190	1,040	1,340	942	1,630	1,130	1,300	1,110	887	767	728
Manganese	72	68.7	70	81.2	41.7	57	45	42	50	74	62	34	102	65.3	74.3	56.9	82.2	50	143	53.4	74.5	81	44.6	50.5	47.5
Mercury	0.42	0.45	0.44	0.53	0.62	0.7	0.4	0.6	0.5	0.34	0.66	0.48	0.31	--	0.36	--	--	--	0.52	--	--	0.28	--	--	--
Nickel	10	10.1	10	9.9	8.3	8	8	6	8	10	8	8	10	8.9	9.9	7.8	14.8	10	14	7.4	9.8	10	9.9	9.9	9
Potassium	509	552	509	396	378	357	321	379	307	457	393	293	518	532	495	490	954	471	639	559	554	479	425	283	336
Sodium	36	68.7	98	129	56.9	62	90	100	72	66	78	33	112	65.4	103	58.8	85.1	50	95	36.6	64.7	62	49.5	42.6	31.5
Zinc	29	17.2	28	59.4	15.7	30	12	10	56	69	66	15	22	15.8	66.3	41.2	33.7	92	170	32.7	27.4	60	22.8	45.5	47
Notes																									

Notes:

NA = Not Analyzed For

I = Estimated Quantity

-- = Below Detectable Limit

C = The result has been corrected for the presence of the analyte on the blank

All concentrations listed were detected at sometime during analysis of sediment, soil and/or water

Source: See Assessment Report of the former Whitney Barrel Co. site, 256 Selma St., Woburn, MA; GIER Engineering Assoc.

Table 2-6
Whitney Barrel Property Soil Analytical Results

Compound	TP-1 U-6	TP-3 U-8	TP-6 U-7	TP-7 U-6.5	TP-9 U-5	TP-11 U-6	TP-12 U-6	TP-12 Dup U-6	TP-13 U-7	TP-15 U-6.5	TP-17 U-7.5	TP-18 U-6	MW-1a U-1a	MW-2a U-1a	MW-3a U-1a	MW-4a U-15.5	B-1 U-16	B-2 U-11	B-3 U-15	B-4 U-10.5	B-5 U-10.5	B-6 U-15	B-6 rep U-15	B-7 U-10.5	B-8 U-11	
Volatile Organic Compounds (mg/kg)																										
1,1,1-Trichloroethane	--	--	--	--	--	--	0.026	2	0.015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	--	--	--	--	--	--	--	0.032	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Butanone	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-Pentanone	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetone	--	--	--	--	0.062C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.017C	--	--	--	--	--
Carbon Disulfide	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	--	--	--	--	--	--	0.25	0.28	--	--	--	--	--	--	--	--	--	--	--	--	0.001J	--	--	--	--	--
Chloroethane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroform	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	--	--	--	--	--	--	3.9	3.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylene Chloride	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.004JC	--	0.003JC	--	0.004JC	0.004JC	--	--	--	0.005JC
Trichloroethane	0.003J	--	--	0.013	0.002J	--	320	130	0.007	--	--	--	0.013	--	0.002J	--	--	--	0.003J	--	--	--	--	--	--	--
Toluene	--	--	--	--	--	--	31	26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Xylenes	--	--	--	--	--	--	26	28	0.002J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.002J	--
Trichloroethene	0.004J	--	--	0.018	--	--	330	120	--	--	--	--	0.003J	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl Chloride	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Basic Neutral Compounds (mg/kg)																									
1,2,4-Trichlorobenzene	--	--	--	0.100J	--	2	0.096	0.079	0.110J	0.100J	0.170J	0.071J	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	--	--	--	--	--	0.073J	0.007J	0.007J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	--	--	--	--	--	0.300J	--	--	--	--	0.36	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	--	--	--	0.081J	--	0.9	0.003J	0.003J	--	0.200J	0.92	--	--	--	--	--	--	--	--	0.170J	--	--	--	--	--
2-Methylnaphthalene	--	--	0.4	--	0.210J	0.072J	0.036	0.036	0.300J	0.092J	0.82	0.075J	0.210J	--	--	--	--	0.060J	--	0.49	--	--	--	--	--
Acenaphthene	--	--	--	--	--	0.130J	0.005J	0.005J	0.098J	--	2.3	--	--	--	--	--	--	0.230J	--	--	--	--	--	--	--
Acenaphthylene	--	--	--	--	--	--	--	--	--	--	0.200J	--	--	--	--	--	--	0.120J	--	--	1	0.45	--	--	--
Anthracene	--	--	--	--	--	--	--	--	--	--	1.4	--	0.071J	--	--	--	--	0.4	--	--	--	0.092J	0.190J	--	--
Benzo(A)Anthracene	0.071J	0.150J	0.160J	0.110J	--	--	--	--	--	0.110J	0.64	--	0.160J	--	0.110J	0.092J	--	--	1.1	--	--	0.37	0.37	--	0.069J
Benzo(A)Pyrene	0.066J	0.140J	0.200J	0.170J	--	--	--	--	0.065J	0.096J	0.44	--	--	--	0.130J	0.098J	--	--	1.2	--	--	0.220J	0.310J	--	--
Benzo(B)Fluoranthene	0.110J	0.160J	0.330J	0.130J	--	0.075J	--	--	--	0.083J	0.56	--	0.130J	--	0.130J	0.074J	--	--	0.96	--	--	0.200J	0.250J	--	--
Benzo(GI H)Perylene	--	0.070J	0.130J	0.150J	--	--	--	--	--	0.069J	0.320J	--	--	--	0.210J	0.092J	--	0.082J	1	--	--	--	0.180J	--	--
Benzo(K)Fluoranthene	--	--	--	0.120J	--	--	--	--	--	0.067J	0.290J	--	0.150J	--	0.088J	0.068J	--	--	0.64	--	--	0.260J	0.36	--	--
Benzyl Alcohol	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzyl Butyl Phthalate	--	--	0.130J	--	--	--	--	--	--	--	--	--	--	0.74	--	--	--	--	--	0.160J	--	--	--	--	--
Bis-(2-Ethylhexyl) Phthalate	0.51	0.093J	1	0.39	0.39	1.3	0.038	0.038	0.51	0.79	0.50	0.310J	0.200J	1.9	0.43	--	0.230J	0.220	0.6	--	1.4	0.46	0.41	11	0.096J
Chrysene	0.080J	0.150J	0.200J	0.140J	--	--	--	--	0.075J	0.220J	0.8	--	0.210J	0.100J	0.150J	0.170J	0.081J	--	1.4	--	--	0.56	0.5	--	--
Dibenz(a,h)Anthracene	--	--	--	--	--	0.065J	--	--	0.065J	0.003J	0.11J	--	--	--	--	--	--	--	--	--	--	0.240J	0.130J	--	--
Diethyl Phthalate	--	--	--	--	--	--	0.01	0.01	--	--	--	--	--	--	--	--	--	0.240J	--	--	--	0.080J	--	--	--
Di-N-Butyl Phthalate	--	--	--	--	--	--	0.013	0.013	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-N-Octyl Phthalate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.9	--	--	0.110J	0.094J	--
Fluoranthene	0.150J	0.260J	0.270J	0.130J	--	0.083J	--	--	0.088J	0.130J	2.6	0.030J	0.37	0.095J	--	0.140J	0.100J	0.100J	2	--	0.072J	1.9	1.4	--	0.092J
Fluorene	--	--	--	--	0.074J	0.073J	0.004J	0.004J	0.170J	--	1.6	--	0.120J	--	--	--	--	--	0.230J	--	--	0.280J	0.180J	--	--
Indeno(1,1,3-CD)Pyrene	--	--	0.110J	0.110J	--	--	--	--	--	0.290J	--	--	--	--	0.150J	--	--	--	--	--	--	--	--	--	--
Naphthalene	--	--	0.59	--	--	0.210J	0.014	0.014	0.077J	0.130J	3.9	--	0.160J	--	--	--	--	--	0.6	--	--	--	0.170J	--	--
Phenanthrene	0.084J	0.140J	0.180J	0.075J	0.120J	0.110J	0.015J	0.015J	0.11	0.190J	2.4	0.097J	0.220J	--	0.095J	--	--	--	--	--	--	0.100J	--	--	--
Pyrene	0.120J	0.340J	0.36	0.260J	0.070J	0.120J	0.002J	--	0.100J	0.160J	2.5	0.083J	0.41	0.096J	0.210J	0.260J	0.095J	0.091J	3	--	0.098J	0.84	0.83	--	0.100J

Notes:
NA = Not Analyzed For
J = Estimated Quantity
C = Below Detection Limit
- = The method has been interfered by the presence of the analyte in the blank

All compounds listed were detected at one time during analysis of sediment, soil or water
Source: Site Assessment Report of the former Whitney Barrel Co. site, 2561 1st St., Woburn, MA 01801 Engineering Assoc.

Table 2-7
Whitney Barrel Company
Summary of Analytical Results of Ground Water Samples

Compound	MW-1s	MW-2s	MW-2s DUP	MW-3s	MW-4s
Volatile Organic Compounds (ug/L)					
Benzene ✓	5	--	2 J	12	63
Chlorobenzene	3 J	39	35	2 J	6 J
1,1,1-Trichloroethane	--	--	--	--	99
1,1-Dichloroethane	--	--	--	43	300
Chloroethane	--	--	--	--	2 J
Chloroform	--	--	--	--	--
1,2-Dichloroethene	39	49	45	77	31
Ethylbenzene	2 J	7	10	31	90
Methylene Chloride	--	--	--	--	--
Toluene	--	1 J	1 J	26	66
Vinyl Chloride ✓	11	18	13	32	15 J
Acetone	--	--	--	--	140 C
2-Butanone	--	--	--	--	16 J,C
4-Methyl-2-Pentanone	--	--	--	5 J	12 J
Total Xylenes	5	5	4 J	96	180
Base Neutral Compounds (ug/L)					
1,2,4-Trichlorobenzene	--	--	--	--	17 J
1,2-Dichlorobenzene	--	--	--	17 J	21
1,3-Dichlorobenzene	--	29	29	6 J	9 J
1,4-Dichlorobenzene p ✓	--	140	140	8 J	24
Napthalene	--	--	--	11 J	6 J
Bis-(2-Ethylhexyl) Phthalate	10 J,C	--	--	--	5 J,C
Diethyl Phthalate	--	--	--	--	8 J,C
2-Methylnapthalene	--	--	--	5 J	--
Acid Compounds (ug/L)					
2-4-Dimethylphenol	--	--	--	--	25
Phenol	--	--	--	--	15 J
2-Methylphenol	--	--	--	--	39
4-Methylphenol	--	--	--	6 J	70
Pesticides/PCBs (ug/L)					
PCB-1260	--	2.8	10	2.2	--
Inorganic Compounds (ug/L)					
Aluminum	5,600	1,400	--	--	0
Arsenic ✓	11	3	--	62	--
Calcium	62,400	23,800	34,800	60,800	60,800
Copper	--	--	--	--	--
Iron	13,500	4,200	5,580	35,000	35,000
Magnesium	6,100	2,040	2,660	10,900	10,900
Manganese	1,780	680	940	1,520	1,520
Potassium	6,700	11,100	15,500	12,800	12,800
Sodium	34,600	50,800	68,100	185,000	185,000
Zinc	60	--	20	60	--

Notes:

- NA = Not Analyzed For
- J = Estimated Quantity
- = Below Detectable Limit
- C = The result has been corrected for the presence of the analyte in the blank.

Source: Site Assessment Report of the former Whitney Barrel Co. site, 256 Salem St., Woburn; GHR Engineering Associates 1985

Appendix A.4

Clean Harbors Table and Figure Excerpts for the Murphy Property and Short Term Measure Soil Characterization Data

TABLE 1
FIELD-SCREENING RESULTS
Murphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, Massachusetts

Location	Sample	Depth (feet)	VOC Headspace (ppm)	Comments
B-1	SS-1	0.5-2.5	<1	Fill
	SS-2	2.5-4.5	4.0	"
	SS-3	4.5-6.5	7.0	"
	SS-4	6.5-8.5	<1	Sand and Gravel
	SS-5	8.5-10.5	2.0	"
	SS-6	10.5-12.5	4.0	"
B-2	SS-1	0.5-2.5	16	Fill
	SS-2	2.5-4.5	24	"
	SS-3	4.5-6.5	160	"
	SS-4	6.5-8.5	100	Sand and Gravel
	SS-5	8.5-10.5	100	"
	SS-6	10.5-12.5	150	"
B-4	SS-1	0-2	3.0	Fill
	SS-2	2-4	1.8	"
	SS-3	4-6	1.4	"
	SS-4	6-8	4.0	Sand and Gravel
	SS-5	8-10	—	"
	SS-6	10-12	>1,000	"
	SS-7	12-14	>1,000	"
B-5	SS-1	0-2	<1	Fill
	SS-2	2-4	<1	"
	SS-3	4-6	<1	"
	SS-4	6-8	<1	Sand & Gravel
	SS-5	8-10	<1	"
	SS-6	10-12	1.2	"
	SS-7	12-14	3.6	"
B-6	SS-1	0-2	1.2	Fill
	SS-2	2-4	19	"
	SS-3	4-6	<1	"
	SS-4	6-8	<1	Sand and Gavel
	SS-5	8-10	8.2	"
	SS-6	10-12	3.0	"
B-7	SS-1	0-2	<1	Fill
	SS-2	2-4	—	"
	SS-3	4-6	<1	"
	SS-4	6-8	48	Sand and Gavel
	SS-5	8-10	>1,000	"
	SS-6	10-12	600	"
B-8	SS-1	0-2	<1	Fill
	SS-2	2-4	<1	"
	SS-3	4-6	<1	"
	SS-4	6-8	>1,000	Sand with little Gravel
	SS-5	8-10	>1,000	"
	SS-6	10-12	280	"

TABLE 1 (continued)
FIELD-SCREENING RESULTS
Murphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, Massachusetts

Location	Sample	Depth (feet)	VOC Headspace (ppm)	Comments
B-9	SS-1	0-2	<1	Fill
	SS-2	2-4	<1	"
	SS-3	4-6	<1	"
	SS-4	6-8	28	Sand with little Gravel
	SS-5	8-10	850	"
	SS-6	10-12	180	"
B-10	SS-1	0-2	<1	Fill
	SS-2	2-4	<1	"
	SS-3	4-6	<1	"
	SS-4	6-8	1.8	Sand with little Gravel
	SS-5	8-10	2.0	"
	SS-6	10-12	30	"
B-11	SS-1	0-2	<1	Fill
	SS-2	2-4	<1	"
	SS-3	4-6	<1	"
	SS-4	6-8	12	Sand with little Gravel
	SS-5	8-10	32	"
	SS-6	10-12	325	"
B-12	SS-1	0-2	<1	Fill
	SS-2	2-4	<1	"
	SS-3	4-6	<1	"
	SS-4	6-8	2.6	Sand with little Gravel
	SS-5	8-10	4.2	"
	SS-6	10-12	1.6	"
B-13	SS-1	0-2	40	Fill
	SS-2	2-4	17	"
	SS-3	4-6	38	"
	SS-4	6-8	>1,000	Sand with little Gravel
	SS-5	8-10	>1,000	"
	SS-6	10-12	>1,000	"
B-14	SS-1	0.5-2.5	95	Fill
	SS-2	2.5-4.5	>1,000	"
	SS-3	4.5-6.5	>1,000	"
	SS-4	6.5-8.5	>1,000	Sand with little Gravel
	SS-5	8.5-10.5	>1,000	"
	SS-6	10.5-12.5	850	"
B-15	SS-1	0-2	<1	Fill
	SS-2	2-4	3.0	"
	SS-3	4-6	<1	"
	SS-4	6-8	<1	Sand with little Gravel
	SS-5	8-10	1.5	"
	SS-6	10-12	3.5	"
	SS-7	12-14	18	"

TABLE 1 (continued)
FIELD-SCREENING RESULTS
 Murphy's Waste Oil Service, Inc.
 252 Salem Street
 Woburn, Massachusetts

Location	Sample	Depth (feet)	VOC Headspace (ppm)	Comments
B-16	SS-1	0-2	<1	Fill
	SS-2	2-4	<1	"
	SS-3	4-6	<1	"
	SS-4	6-8	<1	Sand with little Gravel
	SS-5	8-10	<1	"
	SS-6	10-12	1.8	"
	SS-7	12-14	1.2	"
B-17	SS-1	0-2	8.2	Fill
	SS-2	2-4	70	"
	SS-3	4-6	14	"
	SS-4	6-8	1.5	Sand with little Gravel
	SS-5	8-10	3.8	"
	SS-6	10-12	1.4	"
B-18	SS-1	0-2	5.8	Fill
	SS-2	2-4	2.6	"
	SS-3	4-6	2.0	"
	SS-4	6-8	4.6	Sand with little Gravel
	SS-5	8-10	3.2	"
	SS-6	10-12	6.4	"
	SS-7	12-14	1.2	"
B-19	SS-1	0-2	<1	Fill
	SS-2	2-4	—	"
	SS-3	4-6	<1	Sand with little Gravel
	SS-4	6-8	7.6	"
	SS-5	8-10	<1	"
	SS-6	10-12	<1	"
B-20	SS-1	0-2	<1	Fill
	SS-2	2-4	—	"
	SS-3	4-6	<1	Sand with little Gravel
	SS-4	6-8	5.8	"
	SS-5	8-10	1.2	"
	SS-6	10-12	<1	"
MW-3D	SS-1	14-16	<1	Sand with little Gravel
	SS-2	19-21	<1	"
	SS-3	24-26	<1	"
	SS-4	29-31	<1	"
	SS-5	34-36	<1	"
	SS-6	39-41	1.2	"
	SS-7	44-46	<1	Gravel with trace Sand
	SS-8	49-51	<1	"

TABLE 1 (continued)
FIELD-SCREENING RESULTS

Murphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, Massachusetts

Location	Sample	Depth (feet)	VOC Headspace (ppm)	Comments
MW-7	SS-1	0.5-2.5	60	Fill
	SS-2	2.5-4.5	230	"
	SS-3	4.5-6.5	350	"
	SS-4	6.5-8.5	460	"
	SS-5	8.5-10.5	70	Sand
	SS-6	10.5-12.5	100	"
MW-8	SS-1	0-2	1.6	Fill
	SS-2	2-4	3.0	"
	SS-3	4-6	5.8	"
	SS-4	6-8	<1	"
	SS-5	8-10	<1	Sand with little Gravel
	SS-6	10-12	<1	"
MW-9	SS-1	0-2	<1	Fill
	SS-2	2-4	—	"
	SS-3	4-6	2.3	"
	SS-4	6-8	—	Sand with little Gravel
	SS-5	8-10	1.8	"
	SS-6	10-12	3.0	"
MW-10	SS-1	15-17	80	Sand and Gravel
	SS-2	17-19	68	"
	SS-3	24-26	2.7	"
	SS-4	29-31	5.0	"
	SS-5	34-36	2.8	"
	SS-6	39-41	4.0	"
	SS-7	41-46	1.7	"
MW-11	SS-1	0-2	<1	Sand and Loam
	SS-2	2-4	<1	"
	SS-3	4-6	4	Sand with little Gravel
	SS-4	6-8	18	"
	SS-5	8-10	740	"
	SS-6	10-12	58	"

Notes:

1. Headspace VOCs measured using Foxboro 128 GC Flame Ionization Detector.
2. — = Sample not screened.

**TABLE 2
SOIL ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS**

Murphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, MA

Location	Samples	Depth (feet)	Benzene (ug/kg)	Toluene (ug/kg)	Total Xylenes (ug/kg)	Acetone (ug/kg)	Chloro- ethane (ug/kg)	PCE (ug/kg)	1,1-DCA (ug/kg)	1,1,1-TCA (ug/kg)	TCE (ug/kg)	1-1,2-DCE (ug/kg)	Vinyl Chloride (ug/kg)	2-Butanone (ug/kg)
B-1	(SS-3)	4.5-6.5	ND(5)	ND(7.5)	ND(5)	ND(50)	ND(10)	ND(7.5)	ND(7.5)	ND(5)	ND(5)	ND(7.5)	ND(18)	ND(23)
B-1	(SS-5)	8.5-10.5	ND(5)	ND(7.5)	ND(5)	ND(50)	ND(10)	ND(7.5)	ND(7.5)	ND(5)	ND(5)	ND(7.5)	ND(18)	ND(23)
B-2	(SS-3)	4.5-6.5	ND(5)	ND(7.5)	ND(5)	ND(50)	ND(10)	ND(7.5)	ND(7.5)	ND(5)	ND(5)	ND(7.5)	ND(18)	ND(23)
B-4	(SS-1)	0-2	ND(5)	ND(7.5)	ND(5)	ND(50)	ND(10)	ND(7.5)	ND(7.5)	ND(5)	ND(5)	ND(7.5)	ND(18)	ND(23)
B-4	(SS-6)	10-12	ND(10)	ND(15)	290	ND(100)	ND(20)	ND(15)	ND(15)	ND(10)	ND(10)	ND(15)	ND(35)	ND(45)
B-6	(SS-5)	8-10	ND(5)	ND(7.5)	ND(5)	ND(50)	ND(10)	ND(7.5)	ND(7.5)	ND(5)	ND(5)	ND(7.5)	ND(18)	ND(23)
B-7	(SS-5)	8-10	ND(5)	ND(7.5)	ND(5)	ND(50)	ND(10)	ND(7.5)	ND(7.5)	ND(5)	ND(5)	ND(7.5)	ND(18)	ND(23)
B-8	(SS-1)	0-2	ND(5)	ND(7.5)	ND(5)	ND(50)	ND(10)	ND(7.5)	ND(7.5)	ND(5)	ND(5)	ND(7.5)	ND(18)	ND(23)
B-8	(SS-4)	6-8	ND(7.5)	ND(11)	ND(7.5)	ND(75)	ND(15)	ND(11)	ND(11)	ND(7.5)	ND(7.5)	ND(11)	ND(26)	ND(34)
B-9	(SS-5)	8-10	ND(5)	ND(7.5)	ND(5)	ND(50)	ND(10)	ND(7.5)	ND(7.5)	ND(5)	ND(5)	ND(7.5)	ND(18)	ND(23)
B-10	(SS-6)	10-12	ND(5)	ND(7.5)	ND(5)	ND(50)	ND(10)	ND(7.5)	ND(7.5)	ND(5)	ND(5)	ND(7.5)	ND(18)	ND(23)
B-11	(SS-4)	6-8	ND(5)	ND(7.5)	ND(5)	ND(50)	ND(10)	ND(7.5)	ND(7.5)	ND(5)	ND(5)	ND(7.5)	ND(18)	ND(23)
B-11	(SS-6)	10-12	ND(5)	ND(7.5)	ND(5)	ND(50)	ND(10)	ND(7.5)	ND(7.5)	ND(5)	ND(5)	ND(7.5)	ND(18)	ND(23)
B-12	(SS-5)	8-10	ND(5)	ND(7.5)	ND(5)	ND(50)	ND(10)	ND(7.5)	ND(7.5)	ND(5)	ND(5)	ND(7.5)	ND(18)	ND(23)
B-13	(SS-1)	0-2	ND(10)	ND(15)	ND(10)	ND(100)	ND(20)	29	46	32	86	210	ND(35)	ND(45)
B-13	(SS-5)	8-10	ND(10)	ND(15)	ND(10)	ND(100)	ND(20)	ND(15)	ND(15)	ND(10)	ND(10)	ND(15)	ND(35)	ND(45)
B-14	(SS-2)	2.5-4.5	ND(500)	ND(750)	1,300	ND(5000)	ND(1000)	ND(750)	ND(750)	ND(500)	ND(500)	ND(750)	ND(1800)	ND(2300)
B-14	(SS-5)	8.5-10.5	ND(200)	380	580	ND(2000)	ND(400)	ND(300)	ND(300)	ND(200)	ND(200)	ND(300)	ND(700)	ND(900)
B-15	(SS-5)	8-10	ND(5)	ND(7.5)	ND(5)	ND(50)	ND(10)	ND(7.5)	ND(7.5)	ND(5)	ND(5)	ND(7.5)	ND(18)	ND(23)
B-15	(SS-7)	12-14	ND(5)	ND(7.5)	ND(5)	ND(50)	ND(10)	ND(7.5)	ND(7.5)	ND(5)	ND(5)	ND(7.5)	ND(18)	ND(23)
B-16	(SS-6)	10-12	ND(5)	ND(7.5)	ND(5)	ND(50)	ND(10)	68	ND(7.5)	ND(5)	ND(5)	ND(7.5)	ND(18)	ND(23)
B-17	(SS-2)	2-4	ND(250)	ND(250)	ND(250)	ND(980)	ND(490)	ND(250)	ND(250)	ND(250)	ND(250)	ND(250)	ND(490)	ND(980)
B-18	(SS-1)	0-2	ND(230)	ND(230)	ND(230)	ND(910)	ND(450)	240	ND(230)	ND(230)	1,300	ND(230)	ND(450)	ND(910)
B-18	(SS-3)	4-6	ND(250)	ND(250)	ND(250)	ND(990)	ND(490)	300	ND(250)	ND(250)	680	ND(250)	ND(490)	ND(990)
B-19	(SS-4)	6-8	ND(990)	ND(990)	ND(990)	ND(4000)	ND(2000)	ND(990)	ND(990)	ND(990)	ND(990)	ND(990)	ND(2000)	ND(4000)
B-20	(SS-4)	6-8	ND(5)	ND(5)	ND(5)	ND(20)	ND(10)	ND(15)	ND(5)	ND(5)	ND(5)	ND(5)	ND(10)	ND(20)
MW-1	(SS-5)	8-10	ND(5)	ND(5)	ND(5)	ND(20)	ND(10)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(10)	ND(20)
MW-2	(SS-2)	2-4	ND(5)	ND(5)	ND(5)	210	ND(10)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(10)	50
MW-3	(SS-6)	10-12	ND(5)	ND(5)	ND(5)	ND(20)	ND(10)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(10)	ND(20)
MW-3D	(SS-6)	39-41	ND(5)	ND(5)	ND(5)	ND(20)	ND(10)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(10)	ND(20)
MW-4	(SS-6)	10-12	ND(5)	ND(5)	ND(5)	23	ND(10)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(10)	ND(19)
MW-5S	(SS-6)	10-12	ND(5)	ND(5)	ND(5)	ND(18)	ND(9)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(9)	ND(18)
MW-6	(SS-1)	0-2	ND(5)	ND(5)	ND(5)	ND(20)	ND(10)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(10)	ND(20)
MW-7	(SS-2)	2.5-4.5	ND(5)	ND(7.5)	ND(5)	ND(50)	ND(10)	ND(7.5)	ND(7.5)	ND(5)	ND(5)	ND(7.5)	ND(18)	ND(23)
MW-7	(SS-4)	6.5-8.5	ND(750)	12,000	48,000	ND(7500)	ND(1500)	ND(1100)	ND(1100)	ND(750)	ND(1100)	ND(1100)	ND(2600)	ND(3400)
MW-9	(SS-6)	10-12	ND(5)	ND(7.5)	ND(5)	ND(50)	ND(10)	ND(7.5)	ND(7.5)	ND(5)	ND(5)	ND(7.5)	ND(18)	ND(23)
MW-10	(SS-2)	17-19	ND(5)	ND(5)	ND(5)	ND(20)	ND(10)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(10)	ND(20)
MW-10	(SS-4)	29-31	ND(5)	ND(5)	ND(5)	ND(20)	ND(10)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(10)	ND(20)
MW-11	(SS-3)	4-6	ND(5)	ND(7.5)	ND(5)	ND(50)	ND(10)	ND(7.5)	ND(7.5)	ND(5)	ND(5)	ND(7.5)	ND(18)	ND(23)
MW-11	(SS-5)	8-10	ND(5)	ND(7.5)	ND(5)	ND(50)	ND(10)	ND(7.5)	ND(7.5)	ND(5)	ND(5)	ND(7.5)	ND(18)	ND(23)

Notes:

- () = number in parentheses is laboratory Practical Quantitation Limit (PQL)
- ND = none detected above PQL
- ug/kg = micrograms per kilogram
- All analyses by EPA Method 8260
- Cis-1, 2-dichloroethene reported as trans-1, 2-dichloroethene
- Results for MW-1, MW-2, MW-3, MW-4, MW-5S and MW-6 from October 1994

TABLE 3
SOIL ANALYTICAL RESULTS
TPH & POLYNUCLEAR AROMATIC HYDROCARBON COMPOUNDS

Murphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, MA

Location	Sample	Depth (feet)	TPH mg/kg	Naphthalene (ug/kg)	Acenaphthylene (ug/kg)	Acenaphthene (ug/kg)	Fluorene (ug/kg)	Phenanthrene (ug/kg)	Anthracene (ug/kg)	Fluoranthene (ug/kg)	Pyrene (ug/kg)
B-1	(SS-3)	4.5-6.5	23	45	ND(41)	ND(41)	ND(8.4)	28	ND(21)	41	29
B-1	(SS-5)	8.5-10.5	16	ND(78)	ND(78)	ND(78)	ND(16)	65	ND(40)	100	100
B-2	(SS-3)	4.5-6.5	94	ND(290)	ND(290)	ND(290)	ND(59)	350	ND(150)	920	540
B-4	(SS-1)	0-2	660	ND(3200)	ND(3200)	3,200	730	5,600	1,600	7,000	7,600
B-4	(SS-6)	10-12	7,700	ND(750)	ND(750)	ND(750)	180	560	ND(390)	430	310
B-6	(SS-5)	8-10	ND(10)	ND(40)	ND(40)	220	ND(8.1)	28	ND(21)	56	46
B-7	(SS-5)	8-10	11	ND(40)	ND(40)	ND(40)	ND(8.0)	ND(20)	ND(20)	9.3	ND(8.0)
B-8	(SS-1)	0-2	1,600	400	150	410	18	100	ND(22)	240	220
B-8	(SS-4)	6-8	38	ND(540)	940	580	ND(110)	660	ND(280)	1,200	730
B-9	(SS-5)	8-10	13	ND(40)	ND(40)	ND(40)	ND(8.1)	ND(20)	ND(20)	ND(8.1)	ND(8.1)
B-10	(SS-6)	10-12	14	ND(40)	ND(40)	ND(40)	ND(8.1)	ND(21)	ND(21)	9.5	ND(8.1)
B-11	(SS-4)	6-8	ND(10)	ND(40)	ND(40)	ND(40)	ND(8.2)	ND(21)	ND(21)	28	22
B-11	(SS-6)	10-12	ND(10)	ND(39)	ND(39)	ND(39)	ND(8.0)	ND(20)	ND(20)	ND(8.0)	ND(8.0)
B-12	(SS-5)	8-10	150	ND(39)	ND(39)	ND(39)	ND(7.9)	ND(20)	ND(20)	ND(7.9)	ND(7.9)
B-13	(SS-1)	0-2	4,700	ND(1400)	ND(1400)	ND(1,400)	ND(290)	2,200	ND(730)	3,600	4,300
B-13	(SS-5)	8-10	1,200	ND(160)	ND(160)	ND(160)	65	320	88	200	190
B-14	(SS-2)	2.5-4.5	6,400	ND(1500)	ND(1500)	ND(1500)	300	890	ND(750)	820	410
B-14	(SS-5)	8.5-10.5	3,000	ND(400)	ND(400)	ND(400)	120	570	ND(210)	560	410
B-15	(SS-5)	8-10	11	ND(39)	ND(39)	70	ND(7.8)	ND(20)	ND(20)	ND(7.8)	ND(7.8)
B-15	(SS-7)	12-14	ND(10)	ND(38)	ND(38)	38	ND(7.8)	ND(20)	ND(20)	ND(7.8)	ND(7.8)
B-16	(SS-6)	10-12	240	ND(39)	52	ND(39)	ND(7.8)	59	ND(20)	41	11
B-17	(SS-2)	2-4	730	ND(2900)	3,200	5,100	700	9,000	2,600	11,000	13,000
B-18	(SS-1)	0-2	1,100	ND(1400)	4,100	4,200	ND(280)	5,000	ND(710)	5,900	5,300
B-18	(SS-3)	4-6	86	ND(240)	730	580	ND(50)	820	ND(130)	1,100	940
B-19	(SS-4)	6-8	1,700	ND(4700)	ND(4700)	ND(4700)	ND(4700)	ND(4700)	ND(4700)	ND(470)	ND(470)
B-20	(SS-4)	6-8	450	ND(4400)	ND(4400)	ND(4400)	ND(4400)	ND(4400)	ND(4400)	660	480
MW-1	(SS-1)	0-2	130	---	---	---	---	---	---	---	---
MW-1	(SS-5)	8-10	ND(10)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND(330)	ND(330)
MW-2	(SS-1)	0-2	130	---	---	---	---	---	---	---	---
MW-2	(SS-2)	2-4	130	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND(3,300)	ND(3,300)
MW-2	(SS-4A)	7.5-9.5	15	---	---	---	---	---	---	---	---
MW-3	(SS-1)	0-2	320	---	---	---	---	---	---	---	---
MW-3	(SS-4)	6-8	61	---	---	---	---	---	---	---	---
MW-3	(SS-6)	10-12	ND(10)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND(330)	ND(330)
MW-3D	(SS-6)	39-41	ND(10)	ND(42)	ND(42)	ND(42)	ND(8.5)	ND(21)	ND(21)	ND(8.5)	ND(8.5)

TABLE 3 (continued)
SOIL ANALYTICAL RESULTS
TPH & POLYNUCLEAR AROMATIC HYDROCARBON COMPOUNDS

Murphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, MA

Location	Sample	Depth (feet)	TPH mg/kg	Naphthalene (ug/kg)	Acenaphthylene (ug/kg)	Acenaphthene (ug/kg)	Fluorene (ug/kg)	Phenanthrene (ug/kg)	Anthracene (ug/kg)	Fluoranthene (ug/kg)	Pyrene (ug/kg)
MW-4	(SS-1)	0-2	470	---	---	---	---	---	---	---	---
MW-4	(SS-5)	8-10	12	---	---	---	---	---	---	---	---
MW-4	(SS-6)	10-12	ND(10)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND(330)	ND(330)
MW-5S	(SS-1)	0-2	140	---	---	---	---	---	---	---	---
MW-5S	(SS-6)	10-12	ND(10)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND(330)	ND(330)
MW-6	(SS-1)	0-2	180	ND(3,200)	ND(3,200)	ND(3,200)	ND(3,200)	ND(3,200)	ND(3,200)	ND(3,200)	ND(3,200)
MW-6	(SS-8)	18-20	ND(10)	---	---	---	---	---	---	---	---
MW-7	(SS-2)	2.5-4.5	230	740	ND(690)	ND(690)	ND(140)	380	ND(350)	740	230
MW-7	(SS-4)	6.5-8.5	4,000	ND(1500)	ND(1500)	ND(1500)	310	1,900	ND(750)	3,700	3,100
MW-9	(SS-6)	10-12	ND(10)	ND(41)	ND(41)	ND(41)	ND(8.3)	ND(21)	ND(21)	ND(8.3)	ND(8.3)
MW-10	(SS-2)	17-19	94	ND(190)	ND(190)	ND(190)	ND(39)	130	ND(98)	240	250
MW-10	(SS-4)	29-31	11	ND(37)	ND(37)	ND(37)	ND(7.5)	ND(19)	ND(19)	ND(7.5)	ND(7.5)
MW-11	(SS-3)	4-6	49	ND(230)	ND(230)	ND(230)	ND(47)	200	ND(120)	100	90
MW-11	(SS-5)	8-10	26	ND(40)	ND(40)	ND(40)	ND(8.2)	35	ND(21)	10	ND(8.2)

Notes:

1. () = number in parentheses is laboratory Practical Quantitation Limit (PQL)
2. ND = none detected above PQL
3. ug/kg = micrograms per kilogram
4. --- = not analyzed for that parameter
5. Results for MW-1, MW-2, MW-3, MW-4, MW-5S and MW-6 from October 1994

TABLE 3 (continued)
SOIL ANALYTICAL RESULTS
TPH & POLYNUCLEAR AROMATIC HYDROCARBON COMPOUNDS

Murphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, MA

Location	Samples	Depth (feet)	Benzo (a) anthracene (ug/kg)	Chrysene (ug/kg)	Benzo (b) fluoranthene (ug/kg)	Benzo (k) fluoranthene (ug/kg)	Benzo (a) pyrene (ug/kg)	Indeno (1,2,3-cd) pyrene (ug/kg)	Dibenzo (a,h) anthracene (ug/kg)	Benzo (g,h,i) perylene (ug/kg)
B-1	(SS-3)	4.5-6.5	16	23	18	8.8	18	7.0	1.6	16
B-1	(SS-5)	8.5-10.5	44	59	44	22	60	14	10	64
B-2	(SS-3)	4.5-6.5	440	420	380	200	540	77	44	370
B-4	(SS-1)	0-2	3,000	3,700	2,300	1,300	2,800	6,500	210	2,300
B-4	(SS-6)	10-12	170	500	150	51	220	61	ND(23)	150
B-6	(SS-5)	8-10	24	37	25	13	31	17	3.3	27
B-7	(SS-5)	8-10	3.1	ND(6.0)	4.2	2.0	3.4	2.5	ND(1.2)	3.5
B-8	(SS-1)	0-2	58	100	72	36	58	8.9	5.4	41
B-8	(SS-4)	6-8	370	350	580	280	390	300	46	500
B-9	(SS-5)	8-10	1.0	ND(6.0)	3.2	1.2	2.8	ND(2.0)	ND(1.2)	4.1
B-10	(SS-6)	10-12	3.7	ND(6.0)	4.0	2.1	4.5	3.6	ND(1.2)	4.6
B-11	(SS-4)	6-8	11	12	9.4	4.8	8.7	2.9	ND(1.2)	6.2
B-11	(SS-6)	10-12	3.3	ND(5.9)	3.4	1.8	3.0	ND(2.0)	ND(1.2)	3.3
B-12	(SS-5)	8-10	0.83	ND(5.9)	2.7	1.3	3.6	2.8	ND(1.2)	5.8
B-13	(SS-1)	0-2	1,000	1,900	1,800	820	1,600	510	110	1,400
B-13	(SS-5)	8-10	74	250	75	33	93	88	12	48
B-14	(SS-2)	2.5-4.5	240	380	300	140	240	ND(75)	ND(44)	80
B-14	(SS-5)	8.5-10.5	210	700	290	120	320	32	19	190
B-15	(SS-5)	8-10	ND(0.78)	ND(5.8)	ND(0.78)	ND(0.78)	ND(0.78)	ND(2.0)	ND(1.2)	ND(2.0)
B-15	(SS-7)	12-14	ND(0.78)	ND(5.8)	ND(0.78)	ND(0.78)	0.93	ND(2.0)	ND(1.2)	2.7
B-16	(SS-6)	10-12	9.5	14	20	6.8	9.7	ND(2.0)	ND(1.2)	22
B-17	(SS-2)	2-4	4,900	7,100	4,100	2,300	5,900	420	380	4,000
B-18	(SS-1)	0-2	990	3,100	1,800	1,000	2,200	2,000	160	1,700
B-18	(SS-3)	4-6	170	620	410	200	400	670	30	310
B-19	(SS-4)	6-8	ND(470)	ND(470)	ND(470)	ND(470)	ND(470)	ND(470)	ND(470)	ND(470)
B-20	(SS-4)	6-8	ND(440)	ND(440)	ND(440)	ND(440)	ND(440)	ND(440)	ND(440)	ND(440)
MW-1	(SS-1)	0-2	---	---	---	---	---	---	---	---
MW-1	(SS-5)	8-10	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
MW-2	(SS-1)	0-2	---	---	---	---	---	---	---	---
MW-2	(SS-2)	2-4	ND(3,300)	ND(3,300)	ND(3,300)	ND(3,300)	ND(3,300)	ND(3,300)	ND(3,300)	ND(3,300)
MW-2	(SS-4A)	7.5-9.5	---	---	---	---	---	---	---	---
MW-3	(SS-1)	0-2	---	---	---	---	---	---	---	---
MW-3	(SS-4)	6-8	---	---	---	---	---	---	---	---
MW-3	(SS-6)	10-12	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
MW-3D	(SS-6)	39-41	ND(0.85)	ND(6.3)	ND(0.85)	ND(0.85)	ND(0.85)	ND(2.1)	ND(1.3)	ND(2.1)

TABLE 3 (continued)
SOIL ANALYTICAL RESULTS
TPH & POLYNUCLEAR AROMATIC HYDROCARBON COMPOUNDS

Murphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, MA

Location	Samples	Depth (feet)	Benzo (a) anthracene (ug/kg)	Chrysene (ug/kg)	Benzo (b) fluoranthene (ug/kg)	Benzo (k) fluoranthene (ug/kg)	Benzo (a) pyrene (ug/kg)	Indeno (1,2,3-cd) pyrene (ug/kg)	Dibenzo (a,h) anthracene (ug/kg)	Benzo (g,h,i) perylene (ug/kg)
MW-4	(SS-1)	0-2	---	---	---	---	---	---	---	---
MW-4	(SS-5)	8-10	---	---	---	---	---	---	---	---
MW-4	(SS-6)	10-12	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
MW-5S	(SS-1)	0-2	---	---	---	---	---	---	---	---
MW-5S	(SS-6)	10-12	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
MW-6	(SS-1)	0-2	ND(3,200)	ND(3,200)	ND(3,200)	ND(3,200)	ND(3,200)	ND(3,200)	ND(3,200)	ND(3,200)
MW-6	(SS-8)	18-20	---	---	---	---	---	---	---	---
MW-7	(SS-2)	2.5-4.5	300	220	320	170	400	140	34	350
MW-7	(SS-4)	6.5-8.5	1,500	1,600	1,600	890	2,000	450	220	1,200
MW-9	(SS-6)	10-12	ND(0.83)	ND(6.2)	ND(0.83)	ND(0.83)	ND(0.83)	ND(2.1)	ND(1.2)	ND(2.1)
MW-10	(SS-2)	17-19	100	130	120	62	160	23	20	160
MW-10	(SS-4)	29-31	ND(0.75)	ND(5.6)	ND(0.75)	ND(0.75)	ND(0.75)	ND(1.9)	ND(1.1)	ND(1.9)
MW-11	(SS-3)	4-6	34	41	37	16	37	15	ND(7.1)	53
MW-11	(SS-5)	8-10	4.1	7.1	4.3	2.1	5.1	ND(2.1)	ND(1.2)	4.5

Notes:

1. () = number in parentheses is laboratory Practical Quantitation Limit (PQL)
2. ND = none detected above PQL
3. ug/kg = micrograms per kilogram
4. ---not analyzed for that parameter
5. Results for MW-1, MW-2, MW-3, MW-4, MW-5S and MW-6 from October 1994

TABLE 4
SOIL ANALYTICAL RESULTS
INORGANIC CONSTITUENTS

Murphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, MA

Location	Sample	Depth (feet)	Antimony (mg/kg)	Arsenic (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Thallium (mg/kg)	Zinc (mg/kg)	Cyanide (mg/kg)
B-1	(SS-3)	4.5-6.5	ND(4)	ND(8)	ND(0.038)	ND(0.38)	11	5.8	9	ND(0.0708)	ND(1.1)	ND(8)	ND(0.86)	ND(10)	15	ND(2.4)
B-1	(SS-5)	8.5-10.5	ND(4)	ND(7)	ND(0.036)	ND(0.36)	8.0	6.8	6	ND(0.0620)	ND(1.1)	ND(7)	ND(0.74)	ND(10)	17	ND(2.0)
B-2	(SS-3)	4.5-6.5	ND(3)	ND(8)	ND(0.039)	ND(0.39)	18	22	40	ND(0.0696)	ND(1.2)	ND(8)	ND(0.68)	ND(10)	49	ND(2.0)
B-4	(SS-1)	0-2	ND(3)	8	0.329	0.56	29	38	100	ND(0.0676)	13	ND(7)	ND(0.64)	ND(10)	84	ND(1.9)
B-4	(SS-6)	10-12	5	ND(8)	0.266	ND(0.38)	16	27	60	ND(0.0600)	11	ND(8)	ND(0.81)	ND(10)	36	ND(1.5)
B-6	(SS-5)	8-10	ND(4)	ND(7)	0.232	ND(0.37)	11	12	10	ND(0.0667)	5.9	ND(7)	ND(0.75)	ND(10)	24	ND(2.1)
B-7	(SS-5)	8-10	ND(4)	ND(7)	0.169	ND(0.36)	6.1	3.6	ND(4)	ND(0.0639)	3.2	ND(7)	ND(0.77)	ND(10)	9.7	ND(2.4)
B-8	(SS-1)	0-2	ND(4)	10	0.309	0.83	24	48	1,900	0.3167	17	ND(6)	ND(0.70)	ND(9)	70	ND(1.9)
B-8	(SS-4)	6-8	ND(3)	ND(8)	0.245	ND(0.41)	5.8	1.9	10	ND(0.0818)	ND(1.2)	ND(8)	ND(0.66)	ND(10)	6.6	ND(1.5)
B-9	(SS-5)	8-10	ND(3)	ND(8)	0.122	ND(0.41)	5.1	3.9	5	ND(0.0692)	ND(1.2)	ND(8)	ND(0.70)	ND(10)	7.7	ND(1.4)
B-10	(SS-6)	10-12	ND(4)	ND(7)	0.073	ND(0.36)	4.8	2.8	4	ND(0.0745)	3.3	ND(7)	ND(0.86)	ND(10)	7.9	ND(1.8)
B-11	(SS-4)	6-8	5	ND(7)	0.168	ND(0.36)	5.8	3.4	ND(4)	ND(0.0603)	ND(1.1)	ND(7)	ND(0.70)	ND(10)	6.9	ND(1.5)
B-11	(SS-6)	10-12	ND(4)	ND(5)	0.185	ND(0.26)	5.7	5.2	ND(3)	ND(0.0681)	ND(0.79)	ND(5)	ND(0.73)	ND(8)	7.1	ND(1.9)
B-12	(SS-5)	8-10	ND(3)	ND(6)	0.161	ND(0.32)	10	5.2	20	ND(0.0644)	5.2	ND(6)	ND(0.63)	ND(10)	24	ND(1.9)
B-13	(SS-1)	0-2	ND(2)	9	0.232	0.43	15	16	70	0.5339	8.9	ND(7)	ND(0.47)	ND(10)	57	ND(1.8)
B-13	(SS-5)	8-10	ND(3)	ND(7)	0.140	ND(0.35)	6.5	6.0	10	ND(0.0773)	1.1	ND(7)	ND(0.68)	ND(10)	15	ND(1.3)
B-14	(SS-2)	2.5-4.5	ND(4)	ND(7)	ND(0.035)	ND(0.35)	7.8	20	170	0.1521	2.5	ND(7)	ND(0.81)	ND(10)	48	ND(1.4)
B-14	(SS-5)	8.5-10.5	ND(4)	ND(6)	ND(0.032)	ND(0.32)	9.4	12	60	ND(0.0653)	1.3	ND(6)	ND(0.75)	ND(10)	25	ND(1.4)
B-15	(SS-5)	8-10	ND(4)	ND(8)	ND(0.038)	ND(0.38)	9.6	4.2	ND(4)	ND(0.0743)	2.6	ND(8)	ND(0.77)	ND(10)	9.8	ND(1.7)
B-15	(SS-7)	12-14	ND(4)	ND(8)	ND(0.039)	ND(0.39)	6.6	4.6	ND(4)	ND(0.0676)	2.2	ND(8)	ND(0.85)	ND(10)	11	ND(2.0)
B-16	(SS-6)	10-12	ND(3)	ND(7)	ND(0.034)	ND(0.34)	6.9	3.5	8	ND(0.0672)	ND(1.0)	ND(7)	ND(0.67)	ND(10)	10	ND(1.9)
B-17	(SS-2)	2-4	5	ND(7)	0.460	0.43	22	270	120	0.0804	13	ND(7)	ND(0.62)	ND(10)	120	ND(2.3)
B-18	(SS-1)	0-2	ND(3)	ND(5)	0.243	3.5	24	23	560	0.0568	13	ND(5)	ND(0.60)	10	68	ND(2.2)
B-18	(SS-3)	4-6	ND(3)	ND(5)	0.203	0.23	8.0	4.7	40	ND(0.0508)	ND(0.68)	ND(5)	ND(0.68)	ND(7)	14	ND(2.4)
B-19	(SS-4)	6-8	ND(3)	ND(7)	ND(0.036)	ND(0.36)	33	34	240	0.0565	2.4	ND(7)	ND(0.59)	ND(10)	57	ND(1.9)
B-20	(SS-4)	6-8	ND(3)	ND(6)	ND(0.031)	ND(0.31)	14	28	260	ND(0.0601)	5.6	ND(6)	ND(0.62)	ND(9)	55	ND(1.9)
MW-1	(SS-5)	8-10	ND(3)	ND(6)	ND(0.031)	0.37	18	21	7	ND(0.0636)	8.1	ND(6)	ND(0.65)	ND(9)	34	ND(1.1)
MW-2	(SS-2)	2-4	ND(3)	7	ND(0.035)	0.42	20	20	60	0.1579	9.0	ND(7)	ND(0.69)	ND(10)	56	ND(1.1)
MW-3	(SS-6)	10-12	ND(3)	ND(7)	0.067	ND(0.34)	3.9	1.8	ND(3)	ND(0.0718)	ND(1.0)	ND(7)	ND(0.50)	ND(10)	5.5	ND(1.1)
MW-3D	(SS-6)	39-41	ND(3)	6	0.260	ND(0.29)	9.1	8.0	4	ND(0.0855)	6.7	ND(6)	ND(0.55)	ND(9)	14	ND(1.1)
MW-4	(SS-6)	10-12	ND(4)	ND(6)	ND(0.029)	ND(0.29)	4.9	1.9	ND(3)	ND(0.0622)	ND(0.88)	ND(6)	ND(0.80)	ND(9)	8.0	ND(1.1)
MW-5S	(SS-6)	10-12	ND(3)	ND(5)	ND(0.025)	0.30	13	30	4	ND(0.0640)	8.0	ND(5)	ND(0.56)	ND(7)	27	ND(1.0)
MW-6	(SS-1)	0-2	5	ND(7)	ND(0.034)	0.55	20	28	130	0.1533	7.5	ND(7)	ND(0.71)	ND(10)	97	ND(1.0)
MW-7	(SS-2)	2.5-4.5	ND(4)	ND(8)	ND(0.038)	ND(0.38)	13	20	120	ND(0.0754)	ND(1.1)	ND(8)	ND(0.78)	ND(10)	61	ND(2.1)
MW-7	(SS-4)	6.5-8.5	ND(4)	ND(6)	ND(0.032)	ND(0.32)	32	19	240	0.0792	9.3	ND(6)	ND(0.82)	ND(9)	88	ND(1.9)
MW-9	(SS-6)	10-12	ND(4)	ND(8)	0.127	ND(0.42)	6.0	3.0	ND(4)	ND(0.0742)	ND(1.3)	ND(8)	ND(0.79)	ND(10)	7.8	ND(2.0)
MW-10	(SS-2)	17-19	ND(2)	ND(4)	0.260	0.24	17	23	10	ND(0.0595)	13	ND(4)	ND(0.41)	ND(7)	38	ND(2.1)
MW-10	(SS-4)	29-31	3	ND(4)	0.246	0.31	15	28	9	ND(0.0559)	14	ND(4)	ND(0.57)	ND(7)	37	ND(1.8)
MW-11	(SS-3)	4-6	6	ND(8)	ND(0.038)	ND(0.38)	400	13	20	ND(0.0585)	ND(1.1)	ND(8)	ND(0.76)	ND(10)	41	ND(1.5)
MW-11	(SS-5)	8-10	ND(4)	ND(7)	ND(0.033)	ND(0.33)	38	1.5	4	ND(0.0463)	ND(1.0)	ND(7)	ND(0.78)	ND(10)	11	ND(1.7)

Notes:

- () = number in parentheses is laboratory Practical Quantitation Limit (PQL).
- mg/kg - milligrams per kilogram
- ND = below PQL
- Results for MW-1, MW-2, MW-3, MW-4, MW-5S and MW-6 from October 1994

TABLE 5
WETLAND SAMPLING DATA SUMMARY

Murphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, Massachusetts

Station ID	HNU (ppm)	Soil Description	Surrounding Area Description
P-1	<1	Dark brown fine SAND; and Silt; some organic matter.	Standing water, tree and scrub vegetation
P-2	<1	Dark brown fine SAND; and Silt; some organic matter. Strong organic odor.	Standing water, tree and scrub vegetation
P-3	<1	Dark to light brown fine SAND; and Silt.	Standing water, open area with cattails
P-4	<1	Dark brown to brownish-gray fine SAND; and Silt.	Standing water, reeds and scrub vegetation
P-5	<1	Dark brown fine SAND; and Silt; some organic matter.	Standing water, cattails and trees, plastic pail debris
P-6	<1	Dark to light brown fine SAND; and Silt.	Standing water, cattails and reeds
P-7	<1	Dark brown fine SAND; and Silt; some organic matter.	Standing water, open area
P-9	<1	Dark brown fine SAND; and Silt; some organic matter.	Standing water, cattails and reeds
P-10	<1	Dark brown to brownish-gray fine SAND; and Silt.	Standing water, open area with reeds
P-11	<1	Dark brown fine SAND; and Silt, some organic matter.	Standing water, tree and scrub vegetation
P-12	8	Dark brown fine SAND; and Silt, some organic matter. Heavily stained soil with strong petroleum odor.	Standing water, scrub vegetation
P-13	<1	Dark brown fine SAND; and Silt; some organic matter.	Standing water, tree and scrub vegetation
P-14	<1	Dark brown fine SAND; and Silt; some organic matter.	Standing water, tree and scrub vegetation
P-15	2	Dark brown fine SAND; and Silt; some organic matter. Heavily stained soil with strong petroleum odor.	Standing water, open area
P-17	<1	Dark brown fine SAND; and Silt; some organic matter.	Standing water, tree and scrub vegetation
P-18	<1	Dark brown fine SAND; and Silt; some organic matter. White ceramic (?) material in sample.	Standing water, tree and scrub vegetation
P-19	<1	Brown fine SAND; and Silt; some organic matter.	Dry ground, grass and scrub vegetation
P-20	<1	Dark brown fine SAND; and Silt; some organic matter.	Standing water, cattails and reeds
P-21	<1	Dark brown fine SAND; and Silt; some organic matter;	Standing water, tree and scrub vegetation
P-22	<1	Light brown medium to fine SAND; trace gravel; trace organic matter	Dry ground, gravel fill, tree vegetation
P-23	<1	Brown medium to fine SAND; and organic matter.	Standing water, reed and scrub vegetation, hydrogen sulfide odor
P-24	<1	Dark brown medium to fine SAND; and Silt; some organic matter	Standing water, reed and scrub vegetation,
P-25	<1	Dark brown medium to fine SAND; and Silt; some organic matter	Standing water, reed tree and scrub vegetation
P-26	<1	Dark brown medium to fine SAND; and Silt; some organic matter	Standing water, tree and scrub vegetation
P-27	<1	Dark brown fine SAND; and Silt; some organic matter.	Standing water, open area with cattail and reeds
P-28	<1	Dark brown fine SAND; and Silt; some organic matter.	Wet ground, reed and tree vegetation
P-29	<1	Dark to light brown fine SAND; and Silt; some organic matter	Standing water, open area with reed vegetation
P-30	<1	Dark brown fine SAND; and Silt; some organic matter.	Standing water, open area with cattail and reed vegetation

Notes:

1. Samples P-1 through P-30 collected on 11/16/95.
2. All samples collected at a depth of 6 inches to 18 inches below grade.

TABLE 6
SOIL ANALYTICAL RESULTS
INITIAL WETLAND SAMPLING

Murphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, MA

Location	TPH (mg/kg)	Total PCB (mg/kg)	Total Chromium (mg/kg)	Total Lead (mg/kg)
P-1	44	3.3	76	90
P-2	92	2.7	56	80
P-3	320	3.1	210	140
P-4	40	15	45.1	30
P-5	610	69	280	1,700
P-6	620	6.7	500	620
P-7	3,900	8.9	800	2,700
P-9	140	5.7	110	100
P-10	610	5.4	290	1,400
P-11	4,100	8.5	180	730
P-12	82,000	60	340	24,900
P-13	550	37	400	190
P-14	20,000	11 *	820	16,800
P-15	38,000	24 *	1,100	1,700
P-17	330	5.9	1,000	270
P-18	24,000	13 *	970	3,200
P-19	770	3.1 *	2,000	1,500
P-20	69	0.8 *	190	70
P-21	2,100	1.4 *	1,800	600
P-22	110	0.4 *	230	70
P-23	11,000	10	21,300	2,500
P-24	540	1.0 *	62,500	3,300
P-25	260	2.9	12,400	380
P-26	270	6.6 *	66,500	1,400
P-27	230	0.2 *	14,000	600
P-28	22	ND (1.3)	3,100	90
P-29	130	0.2 *	760	120
P-30	77	ND (0.2)	9,400	280
P-31	—	—	1,500	—
P-32	—	—	7,500	—
SW-1	72	ND (0.1)	5,700	130
SW-2	97,000	220	1,100	35,100
SW-3	620	15	430	1,000
SW-4	74	0.8*	93	630

Notes:

- 1) Total Petroleum Hydrocarbons (TPH) by Gas Chromatogram/Flame Ionization Detector.
- 2) All samples collected at a depth of 0-2 feet below grade.
- 3) All PCBs detected are Aroclor 1254 except those marked with an asterisk(*), which are Aroclor 1260.
- 4) — = Not analyzed.

TABLE 7
SOIL ANALYTICAL RESULTS
ADDITIONAL WETLAND SAMPLING

Murphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, MA

Location	Sample Date	Inorganics			VOCs	PAHs				Pesticides
		Arsenic	Cadmium	Amenable Cyanide		Benzo(a) Pyrene	Benzo(b) Fluoranthene	Fluoranthene	Pyrene	
		(mg/kg)	(mg/kg)	(mg/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(mg/kg)
P-12	12/18/95	ND (10)	ND (0.65)	ND (8.0)	53,000	ND (11,000)	ND (11,000)	ND (11,000)	ND (11,000)	ND(8)
P-24	12/18/95	ND (20)	ND (0.79)	ND (1.0)	ND (250)	ND (880)	ND (880)	ND (880)	ND (880)	ND(1)
P-26	12/18/95	ND (20)	ND (1.0)	ND (1.2)	ND (230)	ND (1,200)	ND (1,200)	ND (1,200)	ND (1,200)	ND(12)
SW-1	10/13/94	ND (10)	ND (0.55)	ND (0.5)	ND (5)	340	680	640	430	ND(0.5)
SW-2	10/14/94	ND (10)	11	ND (0.5)	1,300	ND (66,000)	ND (66,000)	ND (66,000)	---	ND(0.5)
SW-2	12/18/95	---	---	---	---	ND (9,800)	ND (9,800)	ND (9,800)	ND (9,800)	---
SW-3	10/14/94	ND (10)	2.9	ND (0.5)	ND (5)	ND (1,600)	ND (1,600)	ND (1,600)	ND (1,600)	ND(0.5)
SW-4	10/13/94	10	2.0	ND (0.5)	ND (5)	ND (1,600)	2,000	2,000	ND (1,600)	ND(0.5)

Notes:

- 1) --- = Not analyzed.
- 2) All samples collected at a depth of 0-2 feet below grade.
- 3) ND = None detected above method Practical Quantitation Limit (PQL).
- 4) Only those PAHs detected are shown.

TABLE 8
WATER LEVEL DATA

Murphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, Massachusetts

Date	Location									
	MW-1	MW-2	MW-3	MW-3D	MW-4	MW-5S	MW-5D	MW-6	MW-7	MW-8
11/9/94	43.54	43.56	43.53	---	43.41	43.46	43.48	43.52	---	---
12/13/94	45.04	44.80	45.05	---	44.93	44.74	44.74	44.67	---	---
9/15/95	42.37	42.39	42.04	---	42.15	42.35	42.35	42.33	---	---
10/9/95	44.11	43.76	44.27	43.93	44.31	43.87	43.64	43.67	43.71	---
10/19/95	43.46	43.43	43.64	43.44	43.52	43.40	43.42	43.36	43.41	---
10/27/95	43.85	43.76	43.98	43.78	43.95	43.73	43.69	43.67	43.76	43.78
11/7/95	44.10	44.03	44.24	44.04	44.18	43.99	44.03	43.95	---	44.04
11/17/95	45.82	45.15	45.39	45.46	45.39	45.21	45.13	44.96	--	45.23
12/4/95	44.44	44.48	44.36	44.41	44.30	44.36	44.16	44.42	---	44.47
12/18/95	44.32	44.38	44.20	44.23	44.14	44.25	44.16	44.32	44.34	44.37
3/7/96	45.28	45.26	45.04	46.12	45.14	45.09	44.90	45.19	45.17	45.24
(Reference Elev.)	(53.29)	(53.85)	(52.86)	(52.41)	(52.29)	(53.88)	(54.06)	(55.71)	(50.44)	(54.32)

TABLE 8 (continued)

WATER LEVEL DATA

Murphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, Massachusetts

Date	Location									
	MW-9	MW-10	MW-11	MW-12	MW-13	MR-1SS	MR-2SS	SW-A	SW-B	SW-C
11/9/94	---	---	---	---	---	43.20	43.55	---	---	---
12/13/95	---	---	---	---	---	44.93	---	---	---	---
9/15/95	---	---	---	---	---	42.05	42.33	---	---	---
10/9/95	44.18	---	44.01	44.82	44.49	---	43.86	44.76	44.69	---
10/19/95	43.44	43.48	43.19	43.47	43.87	43.28	43.37	---	44.17	---
10/27/95	43.88	43.82	43.69	43.96	44.19	43.81	43.75	---	44.40	---
11/7/95	44.11	44.08	43.87	44.38	44.51	44.01	43.99	---	44.58	---
11/17/95	45.48	45.56	45.35	45.38	45.29	45.65	45.48	45.12	45.17	---
12/4/95	44.27	44.47	44.03	44.35	44.44	44.03	44.38	---	44.60	---
12/18/95	44.16	44.36	43.86	43.99	44.22	43.97	44.26	---	---	44.66
3/7/96	45.06	45.28	44.86	44.96	44.94	44.93	45.16	44.98	45.01	44.89
(Reference Elev.)	(51.82)	(53.84)	(50.04)	(47.29)	(46.42)	(51.62)	(50.80)	(47.22)	(46.42)	(46.46)

TABLE 8 (continued)

WATER LEVEL DATA

Murphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, Massachusetts

Date	Location								
	MW-4S Whitney Barrel	MW-4M Whitney Barrel	MW-4D Whitney Barrel	BW-2 Wildwood	BW-2R Wildwood	BSW-2 Wildwood	BW-3 Wildwood	BW-4 Wildwood	OW-2 Conn. Mutual
11/9/94	---	---	---	---	---	---	---	---	---
12/13/95	---	---	---	---	---	---	---	---	---
9/15/95	---	---	---	---	---	---	---	---	---
10/9/95	---	---	---	---	---	---	---	---	---
10/19/95	---	---	---	---	---	---	---	---	---
10/27/95	43.47	43.43	43.71	43.05	43.53	43.47	43.50	43.74	---
11/7/95	---	---	---	---	---	---	---	---	---
11/17/95	45.03	44.91	---	---	---	---	45.00	45.43	---
12/4/95	43.87	43.90	---	43.38	43.93	43.82	43.93	44.29	44.39
12/18/95	---	---	---	---	---	---	43.83	44.15	44.25
3/7/96	44.49	44.34	44.69	---	---	---	44.43	44.99	45.26
(Reference Elev.)	(46.53)	(46.91)	(47.59)	(46.82)	(47.78)	(48.04)	(47.38)	(46.46)	(76.19)

NOTES:

1. Reference elevations are PVC rim except MR-1SS, MW-12, MW-13, SW-A, SW-B, SW-C, BW-2, BSW-2, MW-4 and OW-2 (protective casing rim).
2. --- indicates well not installed, data point dry or otherwise not gauged.

TABLE 9

VERTICAL HYDRAULIC GRADIENT CALCULATIONS

Murphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, Massachusetts

Date	MW-3			MW-5			MW-10			MW-12			MW-13		
	ΔH	ΔY	i	ΔH	ΔY	i	ΔH	ΔY	i	ΔH	ΔY	i	ΔH	ΔY	i
	feet	feet	%	feet	feet	%	feet	feet	%	feet	feet	%	feet	feet	%
11/9/94	---	37.5	---	0.02	69	0.0	---	28	---	---	3.8	---	---	3.8	---
12/13/94	---	37.5	---	0	69	0.0	---	28	---	---	3.8	---	---	3.8	---
9/15/95	---	37.5	---	0	69	0.0	---	28	---	---	3.8	---	---	3.8	---
10/9/95	-0.34	37.5	-0.9	-0.23	69	-0.3	---	28	---	0.06	3.8	1.6	-0.2	3.8	-5.3
10/19/95	-0.2	37.5	-0.5	0.02	69	0.0	0.11	28	0.4	---	3.8	---	-0.3	3.8	-7.9
10/27/95	-0.2	37.5	-0.5	-0.04	69	-0.1	0.07	28	0.3	---	3.8	---	-0.21	3.8	-5.5
11/7/95	-0.2	37.5	-0.5	0.04	69	0.1	0.09	28	0.3	---	3.8	---	-0.07	3.8	-1.8
11/17/95	0.07	37.5	0.2	-0.08	69	-0.1	0.08	28	0.3	0.26	3.8	6.8	0.12	3.8	3.2
12/4/95	0.05	37.5	0.1	-0.08	69	-0.1	0.09	28	0.3	---	3.8	---	-0.16	3.8	-4.2
12/18/95	0.03	37.5	0.1	-0.09	69	-0.1	0.1	28	0.4	---	3.8	---	---	3.8	---
3/7/96	1.08	37.5	2.9	-0.19	69	-0.3	0.12	28	0.4	-0.02	3.8	-0.5	-0.07	3.8	-1.8

Notes:

- Vertical gradients were calculated for well clusters MW-3/MW-3D; MW-5S/MW-5D; MR-2SS/MW-10; and groundwater relative to surface water at MW-12/SW-A and MW-13/SW-B.
- The parameters are defined as:
 ΔH = Change in head
 ΔY = Vertical difference between screened interval
 i = Vertical gradient in percent = $\Delta H/\Delta Y$

TABLE 10
AQUIFER TESTING DATA SUMMARY

Murphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, Massachusetts

WELL	L (ft)	L (cm)	r (cm)	R (cm)	To (sec)	K (cm/sec)	i (ftvert./ft hor)	Vx (ft/day)
MW-8	2.80	85.3	2.6	10.2	3.0	2.85E-02	0.002	0.65
MW-9	5.40	164.6	2.6	10.2	5.0	1.16E-02	0.002	0.26
MW-10	5.00	152.4	2.6	10.2	5.2	1.18E-02	0.002	0.27
MW-11	5.99	182.6	2.6	10.2	2.4	2.25E-02	0.002	0.51
MW-12	3.00	91.4	1.7	2.0	19.2	3.14E-03	0.002	0.07
MW-13	3.00	91.4	1.7	2.0	25.5	2.37E-03	0.002	0.05

Hydraulic conductivity (K) was calculated using the Hvorslev method which is valid for unconfined conditions where the length of the well screen is greater than eight times the effective radius of the well screen.

K was calculated by the formula:

$$K = \frac{r \ln(L/R)}{2LT_o}$$

Where:

K is hydraulic conductivity

r is the radius of the well casing

R is the effective radius of the well screen (or soil boring)

L is the average length of well screen through which water passes during the test

To is the time it takes for the water level to rise 37 percent of the initial change

Average linear velocities were calculated using measured hydraulic conductivity, hydraulic gradients and an assumed value of effective porosity, using the equation:

$$V = \frac{Ki}{n_e}$$

Where:

Vx is average linear velocity

i is hydraulic gradient

ne is effective porosity of sediments = 0.25

References:

Dunne, T. and Leopold, L.B., 1978. Water in Environmental Planning, W.H. Freeman and Company.

Freeze, R.A. and J.A. Cherry, 1979. Groundwater, Prentice-Hall, Inc.

Fetter, C.W., 1988. Applied Hydrogeology, Second Edition, Merrill Publishing Company.

TABLE 11

Field Data

November 7, 1995

Murphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, Massachusetts

Location	Well Depth (feet)	Reference Elevation (feet)	Water Level (feet)	Water Elevation (feet)	Water Temp (Centigrade)	Specific Conductance (μ mhos/cm)	pH
MW-1	15.0	53.29	9.19	44.10	12.4	460	6.2
MW-2	15.0	53.85	9.82	44.03	12.6	626	6.1
MW-3	14.0	52.86	8.62	44.24	13.3	353	5.5
MW-3D	49.0	52.41	8.37	44.04	12.3	791	6.3
MW-4	15.0	52.29	8.11	44.18	14.3	302	6.1
MW-5S	15.0	53.88	9.89	43.99	14.6	530	6.2
MW-5D	83.5	54.06	10.03	44.03	14.7	1,150	7.3
MW-6	18.0	55.71	11.76	43.95	11.9	647	6.1
MW-7	12.0	50.44	—	—	—	—	—
MW-8	12.0	54.32	10.28	44.04	14.3	632	6.4
MW-9	12.0	51.83	7.71	44.11	14.8	486	5.7
MW-10	41.0	53.84	9.76	44.08	13.9	299	6.3
MW-11	12.0	50.04	6.17	43.87	13.6	8,600	6.1
MW-12	5.4	47.29	2.91	44.38	9.6	6,390	6.5
MW-13	5.3	46.42	1.91	44.51	7.1	1,200	6.3
MR-1SS	13.0	50.34	7.61	44.01	14.3	447	6.0
MR-2SS	15.0	50.80	6.81	43.99	14.5	996	6.3

NOTES:

1. Well reference elevations determined at top of PVC well rim, measured in feet relative to benchmark (pin in power pole = 51.38 feet NGVD).
2. Well depth in feet below standpipe/roadbox rim.
3. Water level measured from reference elevation down to water level.
4. Conductivity in micromhos per centimeter corrected to 25 degrees Centigrade.

TABLE 12

Field Data

December 18, 1995

Murphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, Massachusetts

Location	Well Depth (feet)	Reference Elevation (feet)	Water Level (feet)	Water Elevation (feet)	Water Temp (Centigrade)	Specific Conductance (μ mhos/cm)	pH
MW-1	15.0	53.29	8.79	44.32	9.3	529	6.0
MW-2	15.0	53.85	9.47	44.38	8.8	570	5.9
MW-3	14.0	52.86	8.66	44.20	10.3	332	5.4
MW-3D	49.0	52.41	8.18	44.23	10.6	569	6.1
MW-4	15.0	52.29	8.15	44.14	8.9	340	5.8
MW-5S	15.0	53.88	9.63	44.25	11.0	10	6.1
MW-5D	83.5	54.06	9.90	44.16	9.0	5	6.3
MW-6	18.0	55.71	11.39	44.32	10.7	646	5.8
MW-7	12.0	50.44	6.10	44.34	11.7	1,656	6.3
MW-8	12.0	54.32	9.95	44.37	10.6	694	6.2
MW-9	12.0	51.83	7.66	44.16	9.7	316	5.8
MW-10	41.0	53.84	9.48	44.36	10.7	669	6.2
MW-11	12.0	50.04	6.18	43.86	10.0	815	5.6
MW-12	5.4	47.29	3.30	43.99	5.6	446	6.5
MW-13	5.3	46.42	2.20	44.22	4.9	352	6.3
MR-1SS	13.0	50.34	7.65	43.97	9.9	269	6.1
MR-2SS	15.0	50.80	6.54	44.26	11.5	901	6.0

NOTES:

1. Well reference elevations determined at top of PVC well rim, measured in feet relative to benchmark (pin in power pole = 51.38 feet NGVD).
2. Well depth in feet below standpipe/roadbox rim.
3. Water level measured from reference elevation down to water level.
4. Conductivity in micromhos per centimeter corrected to 25 degrees Centigrade.

TABLE 13

GROUNDWATER AND SURFACE WATER ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDSMurphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, Massachusetts

Location	Date	Benzene (ug/l)	Toluene (ug/l)	Total Xylenes (ug/l)	Acetone (ug/l)	Chloro- ethane (ug/l)	PCE (ug/l)	1,1-DCA (ug/l)	1,1,1-TCA (ug/l)	TCE (ug/l)	1,1,2-DCE (ug/l)	Vinyl Chloride (ug/l)	2-Butanone (ug/l)
MW-1	11/9/94	ND (5)	ND (5)	ND (5)	ND (20)	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)	ND (20)
	11/7/95	ND (5)	ND (5)	ND (5)	25	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)	ND (20)
	12/18/95	ND (5)	ND (5)	ND (5)	ND (20)	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)	ND (20)
MW-2	11/9/94	ND (5)	ND (5)	ND (5)	ND (20)	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)	ND (20)
	11/7/95	ND (5)	ND (5)	ND (5)	24	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)	ND (20)
	12/18/95	ND (5)	ND (5)	ND (5)	ND (20)	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)	ND (20)
MW-3	11/9/94	ND (13)	ND (13)	ND (13)	ND (50)	ND (25)	ND (5)	98	44	100	1,100	ND (25)	ND (50)
	11/7/95	ND (130)	ND (130)	ND (130)	ND (500)	ND (250)	ND (130)	ND(130)	160	140	2,200	ND(250)	ND(500)
	12/18/95	ND (25)	ND (25)	ND (25)	ND (100)	ND (50)	ND (25)	170	220	220	3,100	ND (50)	ND (100)
(Blind Dup.)	12/18/95	ND (250)	ND (250)	ND (250)	ND (1,000)	ND (500)	ND (250)	250	360	400	5,300	ND (500)	ND (500)
MW-3D	11/7/95	ND (5)	ND (5)	ND (5)	25	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)	ND (20)
	12/18/95	ND (5)	ND (5)	ND (5)	ND (20)	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)	ND (20)
MW-4	11/9/94	ND (5)	ND (5)	ND (5)	ND (20)	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)	ND (20)
	11/7/95	ND (5)	ND (5)	ND (5)	ND (20)	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)	ND (20)
	12/18/95	ND (5)	ND (5)	ND (5)	ND (20)	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)	ND (20)
MW-5S	11/9/94	ND (5)	ND (5)	ND (5)	ND (20)	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)	ND (20)
	11/7/95	ND (5)	ND (5)	ND (5)	ND (20)	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)	ND (20)
	12/18/95	ND (5)	ND (5)	ND (5)	ND (20)	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)	ND (20)
MW-5D	11/9/94	ND (5)	ND (5)	ND (5)	ND (20)	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)	ND (20)
	11/7/95	ND (5)	ND (5)	ND (5)	36	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)	ND (20)
	12/18/95	ND (5)	ND (5)	ND (5)	ND (20)	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)	ND (20)
MW-6	11/9/94	ND (5)	ND (5)	ND (5)	ND (20)	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)	ND (20)
	11/7/95	ND (5)	ND (5)	ND (5)	32	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)	ND (20)
	12/18/95	ND (5)	ND (5)	ND (5)	ND (20)	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)	ND (20)
MW-7	12/18/95	ND (25)	ND (25)	ND (25)	ND (100)	ND (50)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND (50)	ND (100)
MW-8	11/7/95	ND (5)	ND (5)	ND (5)	29	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)	ND (20)
	12/18/95	ND (5)	ND (5)	ND (5)	ND (20)	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	6	ND (10)	ND (20)

GROUNDWATER AND SURFACE WATER ANALYTICAL RESULTS VOLATILE ORGANIC COMPOUNDS

[illegible]

TABLE 13 (Cont.)

**GROUNDWATER AND SURFACE WATER ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS**

Murphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, Massachusetts

Notes:

1. Laboratory analyses by EPA Method 624, data shown in micrograms per liter (ug/l).
2. Practical Quantitation Limit shown in parentheses where compounds not detected (ND) or trace (Tr).
3. Abbreviations are used for the following compounds:

1,1-DCA = 1,1-Dichloroethane	PCE = Tetrachloroethene
1,1,1-TCA = 1,1,1-Trichloroethane	TCE = Trichloroethene
t-1,2-DCE = Trans 1,2-Dichloroethene	

Murphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, MA

[illegible]

TABLE 14 (cont.)
GROUNDWATER AND SURFACE WATER ANALYTICAL RESULTS
PCB & POLYNUCLEAR AROMATIC HYDROCARBON COMPOUNDS

Murphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, MA

Location	Date	PCB (ug/l)	Bis(2-ethylhexyl)- phthalate (ug/l)	Naphthalene (ug/l)	Acenaphthylene (ug/l)	Acenaphthene (ug/l)	Fluorene (ug/l)	Phenanthrene (ug/l)	Anthracene (ug/l)	Fluoranthene (ug/l)	Pyrene (ug/l)
MW-11 (Blind Dup.)	11/7/95	ND (1.0)	ND (20)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
	11/8/95	ND (1.0)	ND (20)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
	12/18/95	ND (1.0)	ND (20)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
MW-12	11/7/95	ND (1.0)	ND (20)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
	12/18/95	ND (1.0)	23	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
MW-13	11/7/95	1.6	ND (94)	ND (47)	ND (47)	ND (47)	ND (47)	ND (47)	ND (47)	ND (47)	ND (47)
	12/18/95	3.8	ND (38)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)
MR-1SS	11/9/94	ND (1.0)	ND (200)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)
	11/7/95	ND (1.0)	ND (20)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
	12/18/95	ND (1.0)	ND (20)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
MR-2SS	11/9/94	ND (1.0)	ND (20)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
	11/7/95	ND (1.0)	ND (20)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
	12/18/95	ND (1.0)	ND (38)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)
SW-A	11/9/95	ND (1.0)	ND (20)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
SW-B	11/9/95	ND (1.0)	ND (20)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
SW-3	11/9/94	ND (5.0)	ND (20)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)

Notes:

1. () = number in parentheses is laboratory Practical Quantitation Limit (PQL)
2. ND = none detected above PQL
3. ug/l = micrograms per liter

Murphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, Massachusetts

[illegible]

TABLE 14 (Cont.)
GROUNDWATER AND SURFACE WATER ANALYTICAL RESULTS
PCB & POLYNUCLEAR AROMATIC HYDROCARBON COMPOUNDS

Murphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, Massachusetts

Location	Date	Benzo (a) anthracene (ug/l)	Chrysene (ug/l)	Benzo (b) fluoranthene (ug/l)	Benzo (k) fluoranthene (ug/l)	Benzo (a) pyrene (ug/l)	Indeno (1,2,3-cd) pyrene (ug/l)	Dibenzo (a,h) anthracene (ug/l)	Benzo (g,h,i) perylene (ug/l)
MW-10	11/7/95	ND (100)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
	12/18/95	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
MW-11 (Blind Dup.)	11/7/95	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
	11/8/95	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
	12/18/95	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
MW-12	11/7/95	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
	12/18/95	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
MW-13	11/7/95	ND (47)	ND (47)	ND (47)	ND (47)	ND (47)	ND (47)	ND (47)	ND (47)
	12/18/95	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)
MR-1SS	8/31/93	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
	11/9/94	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)
	11/7/95	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
	12/18/95	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
MR-2SS	8/31/93	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
	11/9/94	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
	11/7/95	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
	12/18/95	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)
SW-A	11/9/95	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
SW-B	11/9/95	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
SW-3	11/9/94	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)

Notes:

1. () = number in parentheses is laboratory Practical Quantitation Limit (PQL)
2. ND = none detected above PQL
3. ug/l = micrograms per liter

TABLE 15

GROUNDWATER AND SURFACE WATER ANALYTICAL RESULTS
DISSOLVED INORGANIC ANALYSESMurphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, Massachusetts

Location	Date	Arsenic (mg/l)	Cadmium (mg/l)	Lead (mg/l)	Zinc (mg/l)	Total Cyanide (mg/l)
MW-1	11/9/94	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.04)	ND (0.04)
	11/7/95	---	---	ND (0.002)	---	---
	12/18/95	---	---	ND (0.005)	---	---
MW-2	11/9/94	ND (0.002)	ND (0.001)	ND (0.002)	ND (0.04)	ND (0.04)
	11/7/95	---	---	ND (0.002)	---	---
	12/18/95	---	---	ND (0.005)	---	---
MW-3	11/9/94	0.003	ND (0.001)	0.002	0.04	ND (0.04)
	11/7/95	---	---	ND (0.002)	---	---
	12/18/95	ND (0.002)	---	ND (0.005)	---	---
(Blind Dup.)	12/18/95	---	---	0.013	---	---
MW-3D	11/7/95	ND (0.002)	ND (0.001)	ND (0.002)	ND (0.04)	ND (0.02)
	12/18/95	---	---	ND (0.005)	---	---
MW-4	11/9/94	ND (0.002)	ND (0.001)	ND (0.002)	ND (0.04)	ND (0.02)
	11/7/95	---	---	ND (0.002)	---	---
	12/18/95	---	---	ND (0.005)	---	---
MW-5S	11/9/94	ND (0.002)	ND (0.001)	ND (0.002)	ND (0.04)	ND (0.02)
	11/7/95	---	---	ND (0.002)	---	---
	12/18/95	---	---	ND (0.005)	---	---
MW-5D	11/9/94	0.003	ND (0.001)	ND (0.002)	ND (0.04)	ND (0.02)
	11/7/95	---	---	ND (0.002)	---	---
	12/18/95	ND (0.002)	---	ND (0.005)	---	---
MW-6	11/9/94	ND (0.002)	0.002	0.006	ND (0.04)	ND (0.02)
	11/7/95	---	---	ND (0.002)	---	---
	12/18/95	---	---	ND (0.005)	ND (0.04)	---
MW-7	12/18/95	---	---	0.006	---	---
MW-8	11/7/95	ND (0.002)	ND (0.001)	ND (0.002)	ND (0.04)	ND (0.02)
	12/18/95	---	---	ND (0.005)	---	---

TABLE 15 (cont.)

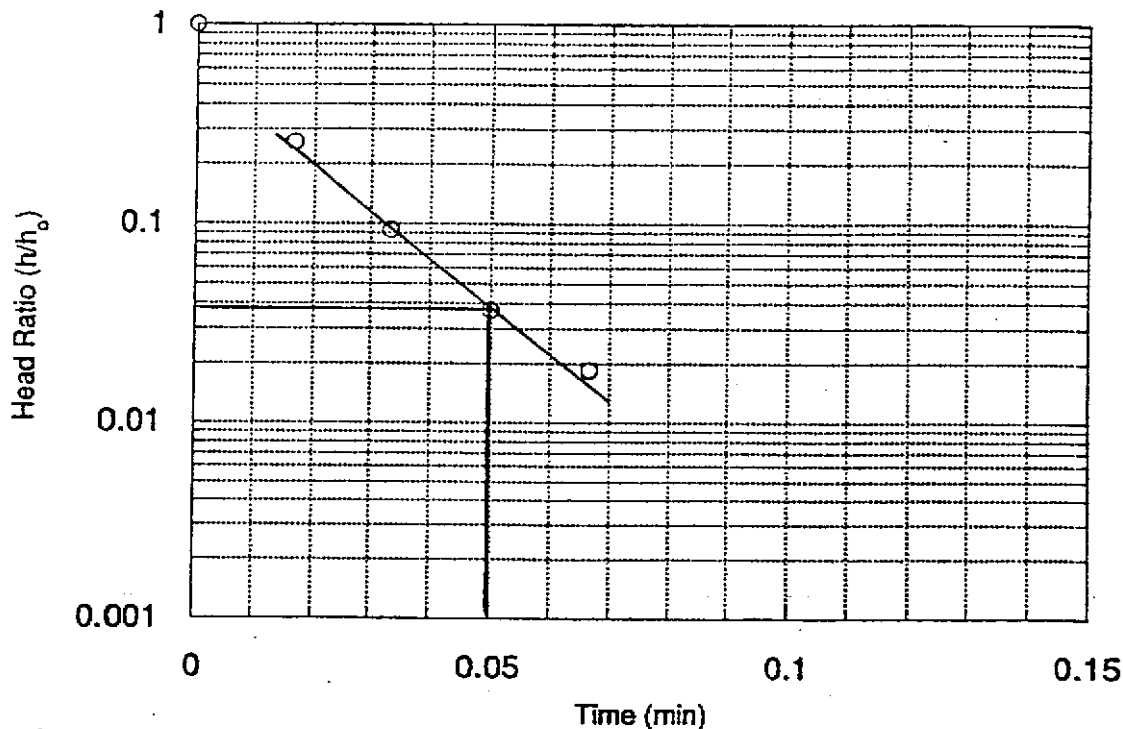
GROUNDWATER AND SURFACE WATER ANALYTICAL RESULTS
DISSOLVED INORGANIC ANALYSESMurphy's Waste Oil Service, Inc.
252 Salem Street
Woburn, Massachusetts

Location	Date	Arsenic (mg/l)	Cadmium (mg/l)	Lead (mg/l)	Zinc (mg/l)	Total Cyanide (mg/l)
MW-9	11/7/95	ND (0.002)	ND (0.001)	ND (0.002)	ND (0.04)	ND (0.02)
	12/18/95	---	---	0.006	---	---
MW-10	11/7/95	ND (0.002)	ND (0.001)	ND (0.002)	ND (0.04)	ND (0.02)
	12/18/95	---	---	ND (0.001)	---	---
MW-11 (Blind Dup.)	11/7/95	ND (0.002)	ND (0.001)	ND (0.002)	ND (0.04)	ND (0.02)
	11/7/95	0.003	ND (0.001)	ND (0.002)	ND (0.04)	ND (0.02)
	12/18/95	ND (0.002)	---	ND (0.001)	---	---
MW-12	11/7/95	0.004	ND (0.001)	ND (0.02)	1.4	ND (0.02)
	12/18/95	ND (0.002)	---	ND (0.001)	2.0	---
MW-13	11/7/95	0.004	ND (0.001)	0.004	0.56	ND (0.02)
	12/18/95	---	---	ND (0.001)	---	---
MR-1SS	8/31/93	ND (0.004)	ND (0.005)	ND (0.001)	ND (0.005)	ND (0.002)
	11/9/94	ND (0.002)	ND (0.001)	ND (0.002)	ND (0.04)	ND (0.04)
	11/7/95	---	---	ND (0.002)	---	---
	12/18/95	---	---	ND (0.001)	---	---
MR-2SS	8/31/93	ND (0.002)	ND (0.005)	0.029	0.025	ND (0.023)
	11/9/94	ND (0.002)	ND (0.001)	0.020	ND (0.04)	ND (0.02)
	11/7/95	---	---	0.006	---	---
	12/18/95	---	---	0.009	---	---
SW-A	11/9/95	0.006	ND (0.001)	0.010	0.11	ND (0.02)
SW-B	11/9/95	0.003	ND (0.001)	0.005	ND (0.04)	ND (0.02)
SW-3	11/9/94	ND (0.002)	ND (0.001)	0.028	ND (0.04)	ND (0.04)

Notes:

1. Practical Quantitation Limit shown in parentheses where compounds not detected (ND).
2. mg/l = Milligrams per liter
3. --- = Parameter not analyzed.

WELL MW-8



$L = 85.6 \text{ cm}$
 $T_0 = 3.0 \text{ sec}$
 $K = 2.85 \times 10^{-2} \text{ cm/sec}$

NOTES:

1. Rising head slug test performed by Clean Harbors on November 17, 1995.
2. L is average length of screen through which water passed during the test.
3. T_0 is time of recovery to 37 percent of initial change ($h/h_0 = 0.37$).

A	PRELIMINARY				
ISSUE	DESCRIPTION	DRWN	CHKD	APPR	DATE

CleanHarbors
 Environmental Services, Inc.
 Remedial Technologies Division
 12 MERCER ROAD
 NATICK, MASSACHUSETTS 01760
 (508) 650-6910

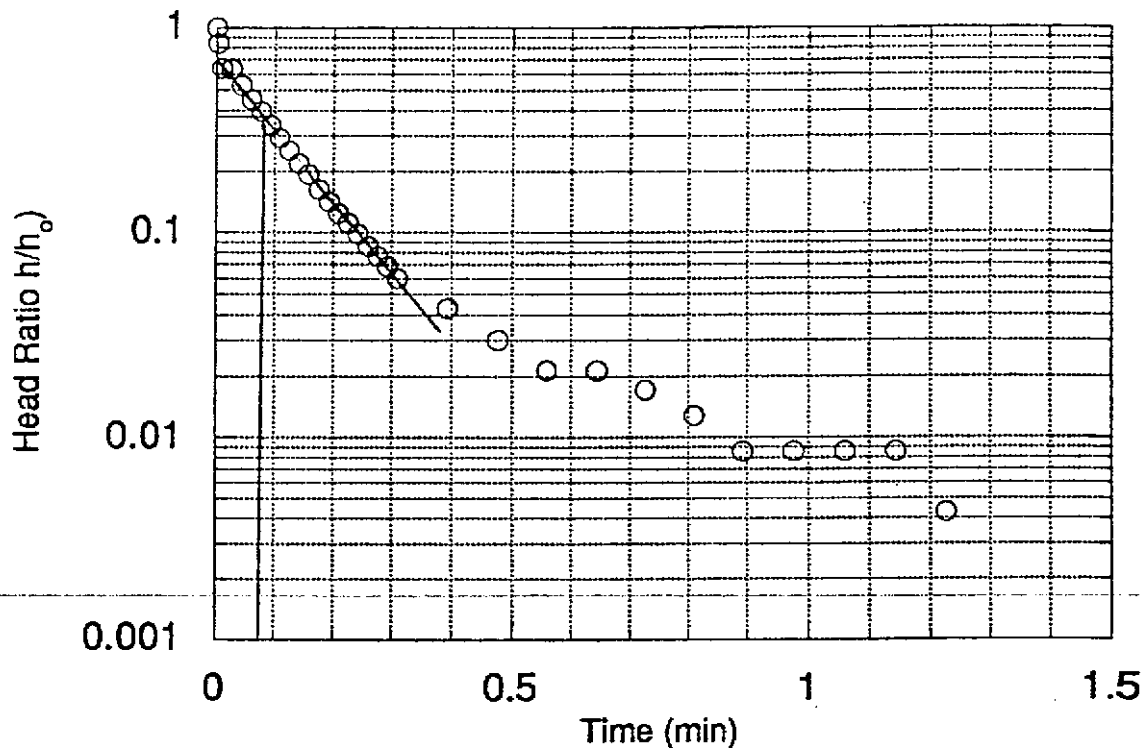
MURPHY'S WASTE OIL SERVICE, INC.
 252 SALEM STREET
 WOBURN, MASSACHUSETTS
WELL MW-8 SLUG TEST

PROJECT NO. EN-170

DWG. NO.

SCALE: NA

WELL MW-9



$L = 165.2 \text{ cm}$
 $T_o = 5.0 \text{ sec}$
 $K = 1.16 \times 10^{-2} \text{ cm/sec}$

NOTES:

1. Rising head slug test performed by Clean Harbors on November 17, 1995.
2. L is average length of screen through which water passed during the test.
3. T_o is time of recovery to 37 percent of initial change ($h/h_o = 0.37$).

A	PRELIMINARY				
ISSUE	DESCRIPTION	DRWN	CHKD	APPR	DATE

CleanHarbors

Environmental Services, Inc.
Remedial Technologies Division

12 MERCER ROAD
 NATICK, MASSACHUSETTS 01760
 (508) 650-6910

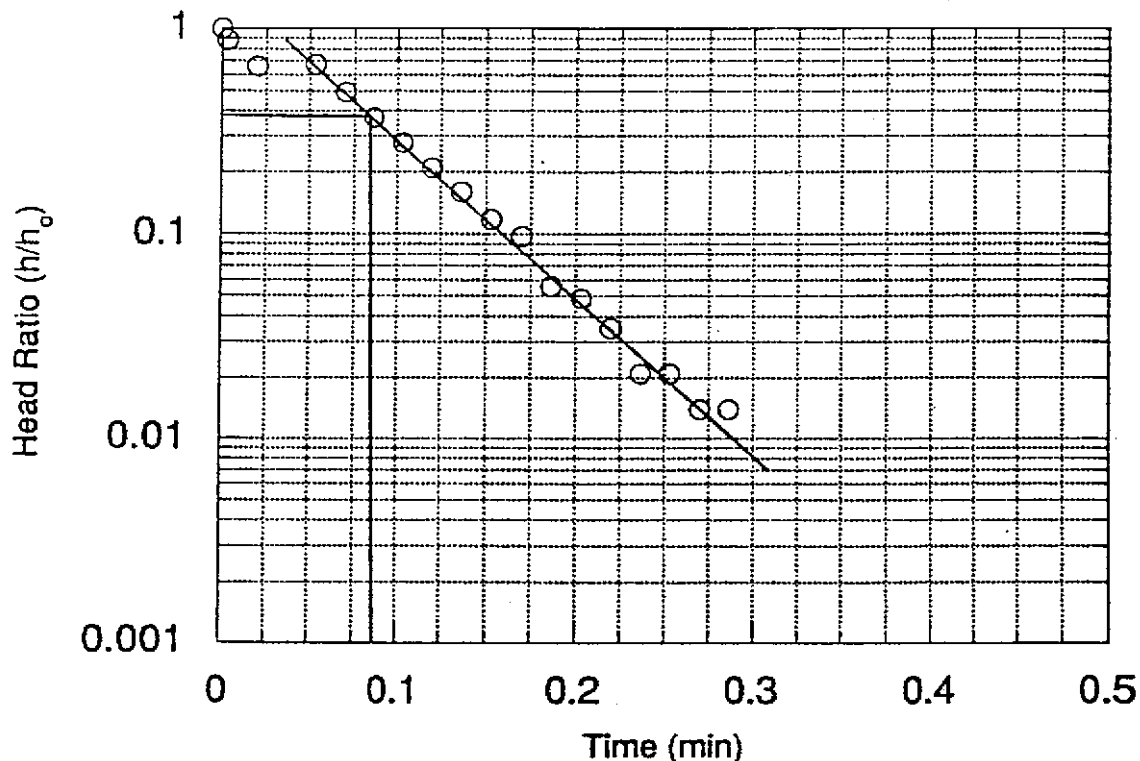
MURPHY'S WASTE OIL SERVICE, INC.
 252 SALEM STREET
 WOBURN, MASSACHUSETTS
WELL MW-9 SLUG TEST

PROJECT NO. EN-170

DWG. NO.

SCALE: NA

WELL MW-10



$L = 152.4 \text{ cm}$
 $T_0 = 5.16 \text{ sec}$
 $K = 1.18 \times 10^{-2} \text{ cm/sec}$

NOTES:

1. Rising head slug test performed by Clean Harbors on November 17, 1995.
2. L is average length of screen through which water passed during the test.
3. T_0 is time of recovery to 37 percent of initial change ($h/h_0 = 0.37$).

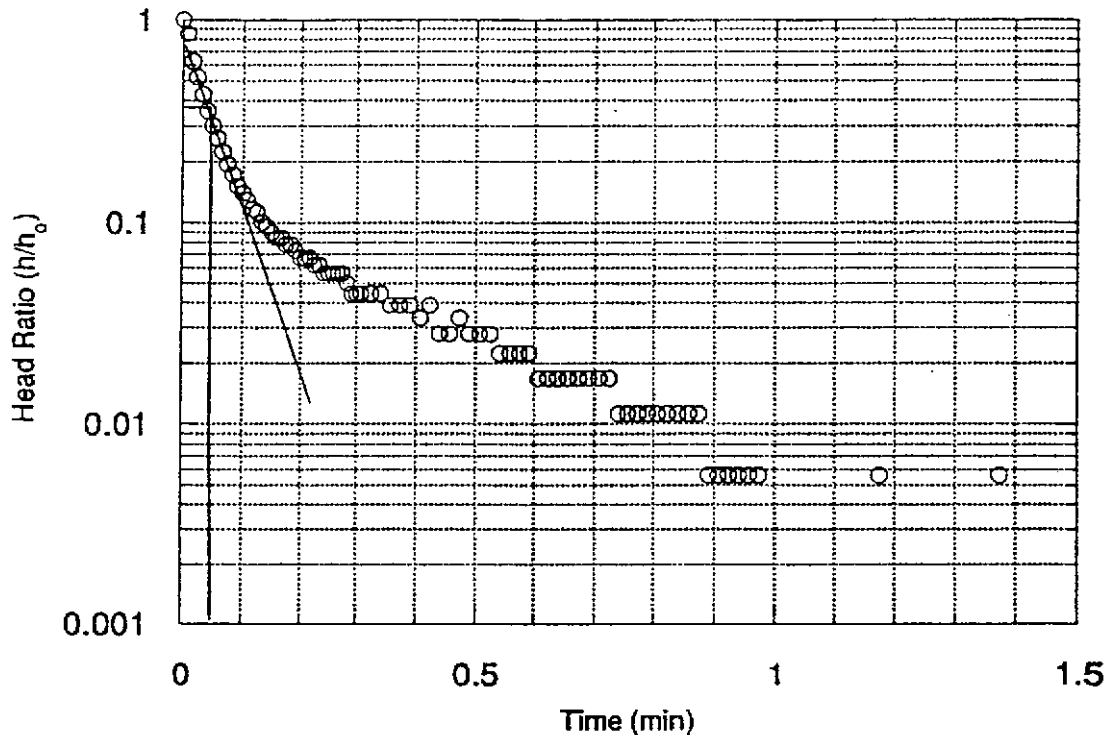
A	PRELIMINARY				
ISSUE	DESCRIPTION	DRWN	CHKD	APPR	DATE
MURPHY'S WASTE OIL SERVICE, INC. 252 SALEM STREET WOBURN, MASSACHUSETTS WELL MW-10 SLUG TEST					
PROJECT NO. EN-170		DWG. NO.			
SCALE: NA					

CleanHarbors

Environmental Services, Inc.
Remedial Technologies Division

12 MERCER ROAD
NATICK, MASSACHUSETTS 01760
(508) 650-6910

WELL MW-11



$L = 182.6 \text{ cm}$
 $T_0 = 2.41 \text{ sec}$
 $K = 2.25 \times 10^{-2} \text{ cm/sec}$

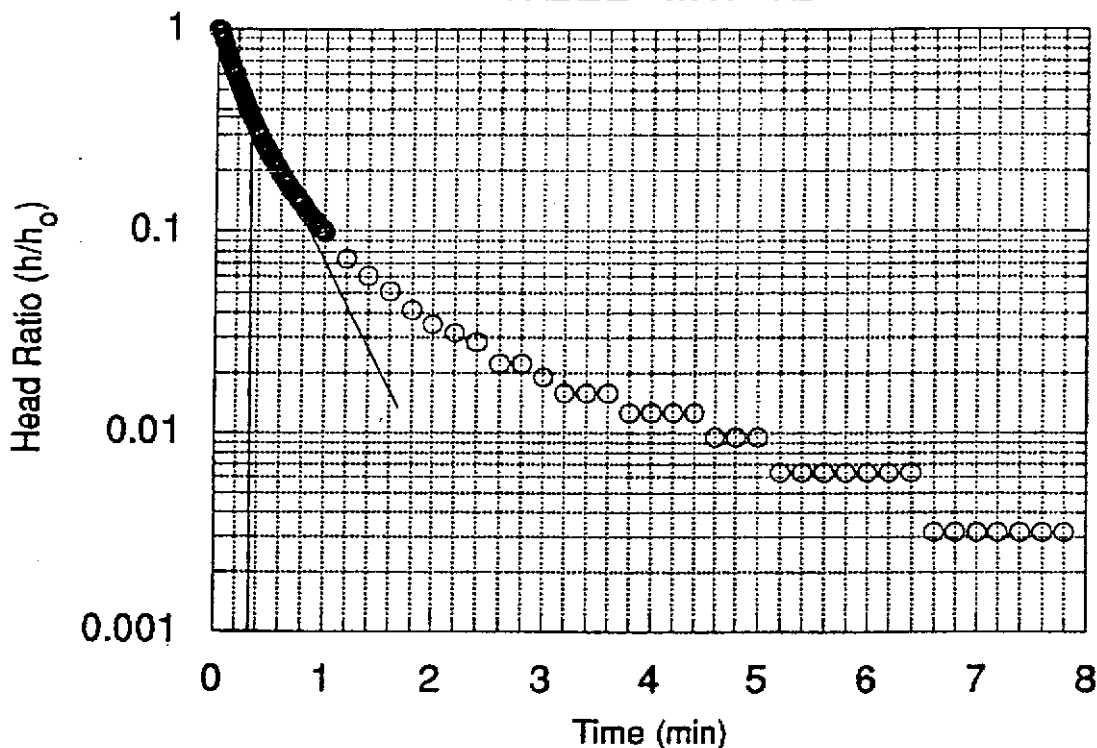
NOTES:

1. Rising head slug test performed by Clean Harbors on November 17, 1995.
2. L is average length of screen through which water passed during the test.
3. T_0 is time of recovery to 37 percent of initial change ($h/h_0 = 0.37$).

A	PRELIMINARY				
ISSUE	DESCRIPTION	DRWN	CHKD	APPR	DATE
<p>MURPHY'S WASTE OIL SERVICE, INC. 252 SALEM STREET WOBURN, MASSACHUSETTS WELL MW-11 SLUG TEST</p>					
PROJECT NO. EN-170			DWG. NO.		
SCALE: NA					

CleanHarbors
Environmental Services, Inc.
Remedial Technologies Division
12 MERCER ROAD
NATICK, MASSACHUSETTS 01760
(508) 650-6910

WELL MW-12



$L = 91.4 \text{ cm}$
 $T_0 = 19.24 \text{ sec}$
 $K = 2.64 \times 10^{-3} \text{ cm/sec}$

NOTES:

1. Rising head slug test performed by Clean Harbors on November 17, 1995.
2. L is average length of screen through which water passed during the test.
3. T_0 is time of recovery to 37 percent of initial change ($h/h_0 = 0.37$).

A	PRELIMINARY				
ISSUE	DESCRIPTION	DRWN	CHKD	APPR	DATE

CleanHarbors

Environmental Services, Inc.
Remedial Technologies Division

12 MERCER ROAD
NATICK, MASSACHUSETTS 01760
(508) 650-6910

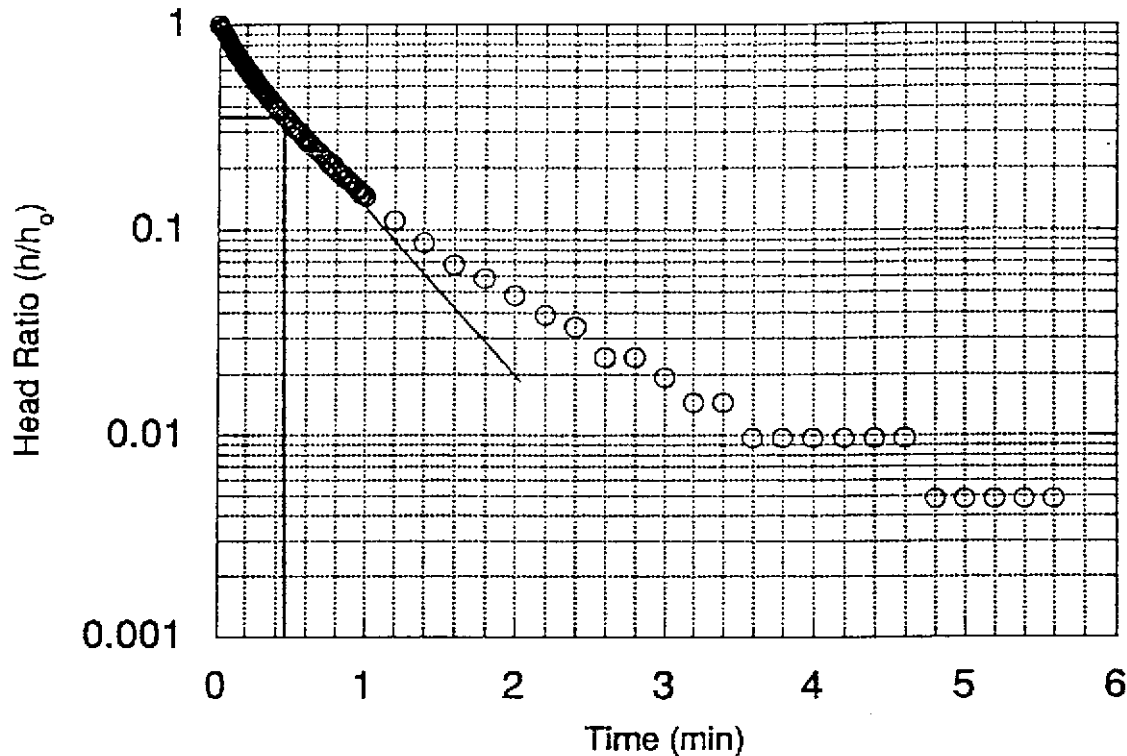
MURPHY'S WASTE OIL SERVICE, INC.
252 SALEM STREET
WOBURN, MASSACHUSETTS
WELL MW-12 SLUG TEST

PROJECT NO. EN-170

DWG. NO.

SCALE: NA

WELL MW-13



$L = 91.4 \text{ cm}$
 $T_0 = 25.47 \text{ sec}$
 $K = 2.00 \times 10^{-3} \text{ cm/sec}$

NOTES:

1. Rising head slug test performed by Clean Harbors on November 17, 1995.
2. L is average length of screen through which water passed during the test.
3. T_0 is time of recovery to 37 percent of initial change ($h/h_0 = 0.37$).

A	PRELIMINARY				
ISSUE	DESCRIPTION	DRWN	CHKD	APPR	DATE

Clean Harbors
 Environmental Services, Inc.
 Remedial Technologies Division
 12 MERCER ROAD
 NATICK, MASSACHUSETTS 01760
 (508) 650-6910

MURPHY'S WASTE OIL SERVICE, INC.
 252 SALEM STREET
 WOBURN, MASSACHUSETTS
WELL MW-13 SLUG TEST

PROJECT NO. EN-170

DWG. NO.

SCALE: NA

SLUG TEST DATA - WELL MW-8

Time (min)	Time (sec)	Elevation (feet)	Change (h)	Head Ratio (h/h ₀)
0.0000	0.00	44.59	0.540	1.0000
0.0166	1.00	44.99	0.140	0.2593
0.0333	2.00	45.08	0.050	0.0926
0.0500	3.00	45.11	0.020	0.0370
0.0666	4.00	45.12	0.010	0.0185
0.0833	5.00	45.13	0.000	0.0000
0.1000	6.00	45.13	0.000	0.0000
0.1166	7.00	45.13	0.000	0.0000
0.1333	8.00	45.13	0.000	0.0000

SLUG TEST DATA - WELL MW-9

Time (min)	Time (sec)	Elevation (feet)	Change (h)	Head Ratio (h/h ₀)
0.0000	0.00	42.90	2.340	1.0000
0.0033	0.20	43.29	1.950	0.8333
0.0100	0.60	43.75	1.490	0.6368
0.0267	1.60	43.76	1.480	0.6325
0.0433	2.60	44.01	1.230	0.5256
0.0600	3.60	44.19	1.050	0.4487
0.0767	4.60	44.32	0.920	0.3932
0.0933	5.60	44.45	0.790	0.3376
0.1100	6.60	44.56	0.680	0.2906
0.1267	7.60	44.65	0.590	0.2521
0.1433	8.60	44.73	0.510	0.2179
0.1600	9.60	44.79	0.450	0.1923
0.1767	10.60	44.86	0.380	0.1624
0.1933	11.60	44.91	0.330	0.1410
0.2097	12.58	44.95	0.290	0.1239
0.2267	13.60	44.98	0.260	0.1111
0.2433	14.60	45.01	0.230	0.0983
0.2600	15.60	45.04	0.200	0.0855
0.2767	16.60	45.06	0.180	0.0769
0.2933	17.60	45.08	0.160	0.0684
0.3100	18.60	45.10	0.140	0.0598
0.3934	23.60	45.14	0.100	0.0427
0.4767	28.60	45.17	0.070	0.0299
0.5600	33.60	45.19	0.050	0.0214
0.6434	38.60	45.19	0.050	0.0214
0.7267	43.60	45.20	0.040	0.0171
0.8100	48.60	45.21	0.030	0.0128
0.8934	53.60	45.22	0.020	0.0085
0.9767	58.60	45.22	0.020	0.0085
1.0600	63.60	45.22	0.020	0.0085
1.1434	68.60	45.22	0.020	0.0085
1.2267	73.60	45.23	0.010	0.0043
1.3067	78.40	45.24	0.000	0.0000
1.3933	83.60	45.24	0.000	0.0000
1.4767	88.60	45.24	0.000	0.0000

SLUG TEST DATA - WELL MW-10

Time (min)	Time (sec)	Elevation (feet)	Change (h)	Head Ratio (h/h ₀)
0.0000	0.00	43.93	1.440	1.0000
0.0033	0.20	44.10	1.270	0.8819
0.0200	1.20	44.42	0.950	0.6597
0.0533	3.20	44.40	0.970	0.6736
0.0700	4.20	44.66	0.710	0.4931
0.0866	5.20	44.84	0.530	0.3681
0.1033	6.20	44.97	0.400	0.2778
0.1200	7.20	45.07	0.300	0.2083
0.1366	8.20	45.14	0.230	0.1597
0.1533	9.20	45.20	0.170	0.1181
0.1700	10.20	45.23	0.140	0.0972
0.1866	11.20	45.29	0.080	0.0556
0.2033	12.20	45.30	0.070	0.0486
0.2200	13.20	45.32	0.050	0.0347
0.2366	14.20	45.34	0.030	0.0208
0.2533	15.20	45.34	0.030	0.0208
0.2700	16.20	45.35	0.020	0.0139
0.2866	17.20	45.35	0.020	0.0139
0.3033	18.20	45.37	0.000	0.0000

SLUG TEST DATA - WELL MW-11

Time (min)	Time (sec)	Elevation (feet)	Change (h)	Head Ratio (h/h ₀)
0.0000	0.00	42.24	1.790	1.0000
0.0083	0.50	42.50	1.530	0.8547
0.0166	1.00	42.92	1.110	0.6201
0.0250	1.50	43.10	0.930	0.5196
0.0333	2.00	43.26	0.770	0.4302
0.0416	2.50	43.39	0.640	0.3575
0.0500	3.00	43.49	0.540	0.3017
0.0583	3.50	43.56	0.470	0.2626
0.0666	4.00	43.63	0.400	0.2235
0.0750	4.50	43.68	0.350	0.1955
0.0833	5.00	43.72	0.310	0.1732
0.0916	5.50	43.76	0.270	0.1508
0.1000	6.00	43.78	0.250	0.1397
0.1083	6.50	43.80	0.230	0.1285
0.1166	7.00	43.82	0.210	0.1173
0.1250	7.50	43.83	0.200	0.1117
0.1333	8.00	43.85	0.180	0.1006
0.1416	8.50	43.86	0.170	0.0950
0.1500	9.00	43.87	0.160	0.0894
0.1583	9.50	43.88	0.150	0.0838
0.1666	10.00	43.88	0.150	0.0838
0.1750	10.50	43.89	0.140	0.0782
0.1833	11.00	43.89	0.140	0.0782
0.1916	11.50	43.90	0.130	0.0726
0.2000	12.00	43.91	0.120	0.0670
0.2083	12.50	43.91	0.120	0.0670
0.2166	13.00	43.91	0.120	0.0670
0.2250	13.50	43.92	0.110	0.0615
0.2333	14.00	43.92	0.110	0.0615
0.2416	14.50	43.93	0.100	0.0559
0.2500	15.00	43.93	0.100	0.0559
0.2583	15.50	43.93	0.100	0.0559
0.2666	16.00	43.93	0.100	0.0559
0.2750	16.50	43.93	0.100	0.0559
0.2833	17.00	43.94	0.090	0.0503
0.2916	17.50	43.95	0.080	0.0447
0.3000	18.00	43.95	0.080	0.0447
0.3083	18.50	43.95	0.080	0.0447
0.3250	19.50	43.95	0.080	0.0447
0.3416	20.50	43.95	0.080	0.0447
0.3583	21.50	43.96	0.070	0.0391
0.3750	22.50	43.96	0.070	0.0391
0.3916	23.50	43.96	0.070	0.0391
0.4083	24.50	43.97	0.060	0.0335
0.4250	25.50	43.96	0.070	0.0391
0.4416	26.50	43.98	0.050	0.0279

SLUG TEST DATA - WELL MW-11

(continued)

Time (min)	Time (sec)	Elevation (feet)	Change (h)	Head Ratio (h/h ₀)
0.4583	27.50	43.98	0.050	0.0279
0.4750	28.50	43.97	0.060	0.0335
0.4916	29.50	43.98	0.050	0.0279
0.5083	30.50	43.98	0.050	0.0279
0.5250	31.50	43.98	0.050	0.0279
0.5416	32.50	43.99	0.040	0.0223
0.5583	33.50	43.99	0.040	0.0223
0.5750	34.50	43.99	0.040	0.0223
0.5916	35.50	43.99	0.040	0.0223
0.6083	36.50	44.00	0.030	0.0168
0.6250	37.50	44.00	0.030	0.0168
0.6416	38.50	44.00	0.030	0.0168
0.6583	39.50	44.00	0.030	0.0168
0.6750	40.50	44.00	0.030	0.0168
0.6916	41.50	44.00	0.030	0.0168
0.7080	42.48	44.00	0.030	0.0168
0.7250	43.50	44.00	0.030	0.0168
0.7416	44.50	44.01	0.020	0.0112
0.7583	45.50	44.01	0.020	0.0112
0.7750	46.50	44.01	0.020	0.0112
0.7916	47.50	44.01	0.020	0.0112
0.8083	48.50	44.01	0.020	0.0112
0.8250	49.50	44.01	0.020	0.0112
0.8416	50.50	44.01	0.020	0.0112
0.8583	51.50	44.01	0.020	0.0112
0.8750	52.50	44.01	0.020	0.0112
0.8916	53.50	44.02	0.010	0.0056
0.9083	54.50	44.02	0.010	0.0056
0.9250	55.50	44.02	0.010	0.0056
0.9416	56.50	44.02	0.010	0.0056
0.9583	57.50	44.02	0.010	0.0056
0.9750	58.50	44.02	0.010	0.0056
1.1750	70.50	44.02	0.010	0.0056
1.3750	82.50	44.02	0.010	0.0056
1.5750	94.50	44.02	0.010	0.0056
1.7750	106.5	44.02	0.010	0.0056
1.9750	118.5	44.03	0.000	0.0000

SLUG TEST DATA - WELL MW-12

Time (min)	Time (sec)	Elevation (feet)	Change (h)	Head Ratio (h/h ₀)
0.0000	0.00	47.50	3.150	1.0000
0.0083	0.50	47.49	3.140	0.9968
0.0166	1.00	47.48	3.130	0.9936
0.0250	1.50	47.43	3.080	0.9778
0.0333	2.00	47.33	2.980	0.9460
0.0416	2.50	47.23	2.880	0.9143
0.0500	3.00	47.14	2.790	0.8857
0.0583	3.50	47.05	2.700	0.8571
0.0666	4.00	46.97	2.620	0.8317
0.0750	4.50	46.89	2.540	0.8063
0.0833	5.00	46.81	2.460	0.7810
0.0916	5.50	46.74	2.390	0.7587
0.1000	6.00	46.67	2.320	0.7365
0.1083	6.50	46.61	2.260	0.7175
0.1166	7.00	46.54	2.190	0.6952
0.1250	7.50	46.48	2.130	0.6762
0.1333	8.00	46.42	2.070	0.6571
0.1416	8.50	46.36	2.010	0.6381
0.1500	9.00	46.30	1.950	0.6190
0.1583	9.50	46.25	1.900	0.6032
0.1666	10.00	46.20	1.850	0.5873
0.1750	10.50	46.25	1.900	0.6032
0.1833	11.00	46.11	1.760	0.5587
0.1916	11.50	46.06	1.710	0.5429
0.2000	12.00	46.01	1.660	0.5270
0.2083	12.50	45.97	1.620	0.5143
0.2166	13.00	45.93	1.580	0.5016
0.2250	13.50	45.89	1.540	0.4889
0.2333	14.00	45.85	1.500	0.4762
0.2416	14.50	45.81	1.460	0.4635
0.2500	15.00	45.78	1.430	0.4540
0.2583	15.50	45.74	1.390	0.4413
0.2666	16.00	45.71	1.360	0.4317
0.2750	16.50	45.68	1.330	0.4222
0.2833	17.00	45.65	1.300	0.4127
0.2916	17.50	45.62	1.270	0.4032
0.3000	18.00	45.59	1.240	0.3936
0.3083	18.50	45.56	1.210	0.3841
0.3166	19.00	45.53	1.180	0.3746
0.3250	19.50	45.50	1.150	0.3651
0.3333	20.00	45.48	1.130	0.3587
0.3500	21.00	45.43	1.080	0.3429
0.3666	22.00	45.38	1.030	0.3270
0.3833	23.00	45.34	0.990	0.3143
0.4000	24.00	45.30	0.950	0.3016
0.4166	25.00	45.26	0.910	0.2889

SLUG TEST DATA - WELL MW-12

(continued)

Time (min)	Time (sec)	Elevation (feet)	Change (h)	Head Ratio (h/h ₀)
0.4333	26.00	45.22	0.870	0.2762
0.4500	27.00	45.19	0.840	0.2667
0.4666	28.00	45.16	0.810	0.2571
0.4833	29.00	45.13	0.780	0.2476
0.5000	30.00	45.10	0.750	0.2381
0.5166	31.00	45.07	0.720	0.2286
0.5333	32.00	45.05	0.700	0.2222
0.5500	33.00	45.02	0.670	0.2127
0.5666	34.00	45.00	0.650	0.2063
0.5833	35.00	44.98	0.630	0.2000
0.6000	36.00	44.95	0.600	0.1905
0.6166	37.00	44.93	0.580	0.1841
0.6333	38.00	44.91	0.560	0.1778
0.6500	39.00	44.89	0.540	0.1714
0.6666	40.00	44.88	0.530	0.1683
0.6833	41.00	44.86	0.510	0.1619
0.7000	42.00	44.84	0.490	0.1556
0.7166	43.00	44.83	0.480	0.1524
0.7333	44.00	44.82	0.470	0.1492
0.7500	45.00	44.80	0.450	0.1429
0.7666	46.00	44.79	0.440	0.1397
0.7833	47.00	44.78	0.430	0.1365
0.8000	48.00	44.77	0.420	0.1333
0.8166	49.00	44.75	0.400	0.1270
0.8333	50.00	44.74	0.390	0.1238
0.8500	51.00	44.73	0.380	0.1206
0.8666	52.00	44.72	0.370	0.1175
0.8833	53.00	44.71	0.360	0.1143
0.9000	54.00	44.70	0.350	0.1111
0.9166	55.00	44.70	0.350	0.1111
0.9333	56.00	44.69	0.340	0.1079
0.9500	57.00	44.68	0.330	0.1048
0.9666	58.00	44.67	0.320	0.1016
0.9833	59.00	44.67	0.320	0.1016
1.0000	60.00	44.66	0.310	0.0984
1.2000	72.00	44.58	0.230	0.0730
1.4000	84.00	44.54	0.190	0.0603
1.6000	96.00	44.51	0.160	0.0508
1.8000	108.00	44.48	0.130	0.0413
2.0000	120.00	44.46	0.110	0.0349
2.2000	132.00	44.45	0.100	0.0317
2.4000	144.00	44.44	0.090	0.0286
2.6000	156.00	44.42	0.070	0.0222
2.8000	168.00	44.42	0.070	0.0222
3.0000	180.00	44.41	0.060	0.0190

SLUG TEST DATA - WELL MW-12

(continued)

Time (min)	Time (sec)	Elevation (feet)	Change (h)	Head Ratio (h/h ₀)
3.2000	192.00	44.40	0.050	0.0159
3.4000	204.00	44.40	0.050	0.0159
3.6000	216.00	44.40	0.050	0.0159
3.8000	228.00	44.39	0.040	0.0127
4.0000	240.00	44.39	0.040	0.0127
4.2000	252.00	44.39	0.040	0.0127
4.4000	264.00	44.39	0.040	0.0127
4.6000	276.00	44.38	0.030	0.0095
4.8000	288.00	44.38	0.030	0.0095
5.0000	300.00	44.38	0.030	0.0095
5.2000	312.00	44.37	0.020	0.0064
5.4000	324.00	44.37	0.020	0.0064
5.6000	336.00	44.37	0.020	0.0064
5.8000	348.00	44.37	0.020	0.0064
6.0000	360.00	44.37	0.020	0.0064
6.2000	372.00	44.37	0.020	0.0064
6.4000	384.00	44.37	0.020	0.0064
6.6000	396.00	44.36	0.010	0.0032
6.8000	408.00	44.36	0.010	0.0032
7.0000	420.00	44.36	0.010	0.0032
7.2000	432.00	44.36	0.010	0.0032
7.4000	444.00	44.36	0.010	0.0032
7.6000	456.00	44.36	0.010	0.0032
7.8000	468.00	44.36	0.010	0.0032
8.0000	480.00	44.35	0.000	0.0000

SLUG TEST DATA - WELL MW-13

Time (min)	Time (sec)	Elevation (feet)	Change (h)	Head Ratio (h/h ₀)
0.0000	0.00	46.51	2.070	1.0000
0.0083	0.50	46.51	2.070	1.0000
0.0166	1.00	46.45	2.010	0.9710
0.0250	1.50	46.40	1.960	0.9469
0.0333	2.00	46.35	1.910	0.9227
0.0416	2.50	46.30	1.860	0.8986
0.0500	3.00	46.26	1.820	0.8792
0.0583	3.50	46.22	1.780	0.8599
0.0666	4.00	46.18	1.740	0.8406
0.0750	4.50	46.14	1.700	0.8213
0.0833	5.00	46.10	1.660	0.8019
0.0916	5.50	46.06	1.620	0.7826
0.1000	6.00	46.02	1.580	0.7633
0.1083	6.50	45.99	1.550	0.7488
0.1166	7.00	45.96	1.520	0.7343
0.1250	7.50	45.93	1.490	0.7198
0.1333	8.00	45.90	1.460	0.7053
0.1416	8.50	45.86	1.420	0.6860
0.1500	9.00	45.84	1.400	0.6763
0.1583	9.50	45.81	1.370	0.6618
0.1666	10.00	45.78	1.340	0.6473
0.1750	10.50	45.76	1.320	0.6377
0.1833	11.00	45.72	1.280	0.6184
0.1916	11.50	45.70	1.260	0.6087
0.2000	12.00	45.68	1.240	0.5990
0.2083	12.50	45.66	1.220	0.5894
0.2166	13.00	45.63	1.190	0.5749
0.2250	13.50	45.61	1.170	0.5652
0.2333	14.00	45.59	1.150	0.5556
0.2416	14.50	45.57	1.130	0.5459
0.2500	15.00	45.54	1.100	0.5314
0.2583	15.50	45.52	1.080	0.5217
0.2666	16.00	45.50	1.060	0.5121
0.2750	16.50	45.48	1.040	0.5024
0.2833	17.00	45.46	1.020	0.4928
0.2916	17.50	45.45	1.010	0.4879
0.3000	18.00	45.43	0.990	0.4783
0.3083	18.50	45.41	0.970	0.4686
0.3166	19.00	45.39	0.950	0.4589
0.3250	19.50	45.38	0.940	0.4541
0.3333	20.00	45.36	0.920	0.4444
0.3500	21.00	45.33	0.890	0.4300
0.3666	22.00	45.30	0.860	0.4155
0.3833	23.00	45.27	0.830	0.4010
0.4000	24.00	45.24	0.800	0.3865
0.4166	25.00	45.22	0.780	0.3768

SLUG TEST DATA - WELL MW-13

(continued)

Time (min)	Time (sec)	Elevation (feet)	Change (h)	Head Ratio (h/h ₀)
0.4333	26.00	45.19	0.750	0.3623
0.4500	27.00	45.17	0.730	0.3527
0.4666	28.00	45.15	0.710	0.3430
0.4833	29.00	45.13	0.690	0.3333
0.5000	30.00	45.10	0.660	0.3188
0.5166	31.00	45.08	0.640	0.3092
0.5333	32.00	45.06	0.620	0.2995
0.5500	33.00	45.05	0.610	0.2947
0.5666	34.00	45.03	0.590	0.2850
0.5833	35.00	45.01	0.570	0.2754
0.6000	36.00	44.99	0.550	0.2657
0.6166	37.00	44.98	0.540	0.2609
0.6333	38.00	44.96	0.520	0.2512
0.6500	39.00	44.95	0.510	0.2464
0.6666	40.00	44.94	0.500	0.2415
0.6833	41.00	44.93	0.490	0.2367
0.7000	42.00	44.91	0.470	0.2271
0.7166	43.00	44.90	0.460	0.2222
0.7333	44.00	44.89	0.450	0.2174
0.7500	45.00	44.87	0.430	0.2077
0.7666	46.00	44.86	0.420	0.2029
0.7833	47.00	44.86	0.420	0.2029
0.8000	48.00	44.84	0.400	0.1932
0.8166	49.00	44.83	0.390	0.1884
0.8333	50.00	44.82	0.380	0.1836
0.8500	51.00	44.82	0.380	0.1836
0.8666	52.00	44.80	0.360	0.1739
0.8833	53.00	44.80	0.360	0.1739
0.9000	54.00	44.79	0.350	0.1691
0.9166	55.00	44.78	0.340	0.1643
0.9333	56.00	44.77	0.330	0.1594
0.9500	57.00	44.76	0.320	0.1546
0.9666	58.00	44.75	0.310	0.1498
0.9833	59.00	44.75	0.310	0.1498
1.0000	60.00	44.74	0.300	0.1449
1.2000	72.00	44.67	0.230	0.1111
1.4000	84.00	44.62	0.180	0.0870
1.6000	96.00	44.58	0.140	0.0676
1.8000	108.00	44.56	0.120	0.0580
2.0000	120.00	44.54	0.100	0.0483
2.2000	132.00	44.52	0.080	0.0386
2.4000	144.00	44.51	0.070	0.0338
2.6000	156.00	44.49	0.050	0.0242
2.8000	168.00	44.49	0.050	0.0242
3.0000	180.00	44.48	0.040	0.0193

SLUG TEST DATA - WELL MW-13
(continued)

Time (min)	Time (sec)	Elevation (feet)	Change (h)	Head Ratio (h/h _o)
3.2000	192.00	44.47	0.030	0.0145
3.4000	204.00	44.47	0.030	0.0145
3.6000	216.00	44.46	0.020	0.0097
3.8000	228.00	44.46	0.020	0.0097
4.0000	240.00	44.46	0.020	0.0097
4.2000	252.00	44.46	0.020	0.0097
4.4000	264.00	44.46	0.020	0.0097
4.6000	276.00	44.46	0.020	0.0097
4.8000	288.00	44.45	0.010	0.0048
5.0000	300.00	44.45	0.010	0.0048
5.2000	312.00	44.45	0.010	0.0048
5.4000	324.00	44.45	0.010	0.0048
5.6000	336.00	44.45	0.010	0.0048
5.8000	348.00	44.44	0.000	0.0000